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Published weekly by Simmons-Boardman Publishing Corporation, Orange, Conn. Executive Offices, 30 Church Street, New York 7, N. Y. Entered as second class matter at Orange, Conn., under the act of March 3, 1879. Subscription price $6.00 for one year. U. S. and Canada. Single copies, 50 cents each. Vol. 124, No. 15.

Vol. 124, No. 15 April 10, 1948

RAILWAY AGE

With which are incorporated the Railway Review, the Railway Gazette, and the Railway-Age Gazette. Name Registered in U. S. Patent Office.

IN THIS ISSUE

EDITORIALS:

GENERAL ARTICLES:

Published each Saturday by the Simmons-Boardman Publishing Corporation, Orange, Conn., with Editorial and Executive Offices at 30 Church Street, New York 7, N. Y., and 105 W. Adams Street, Chicago 3, Ill.

Washington 4, D. C.: 1081 National Press Building—Cleveland 13: Terminal Tower—Seattle 1: 1033 Henry Building—San Francisco 4: 300 Montgomery Street, Rooms 805-806—Los Angeles 14: 530 West 6th Street—Dallas 4: 2909 Maple Avenue.

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Subscriptions including 52 regular weekly issues, and special daily editions published from time to time in New York or in places other than New York, payable in advance and postage free. United States, U. S. possessions and Canada: 1 year, $6.00; 2 years, $10.00; other countries not including daily editions: in Western Hemisphere 1 year $10.00; 2 years $16.00; other countries 1 year $15.00; 2 years $25.00. Single copies, 50 cents each, except special issues.

H. E. McCandless, Circulation Manager, 30 Church Street, New York 7.

Railway Age is a member of Associated Business Papers (A. B. P.) and Audit Bureau of Circulation (A. B. C.) and is indexed by the Industrial Arts Index and by the Engineering Index Service.

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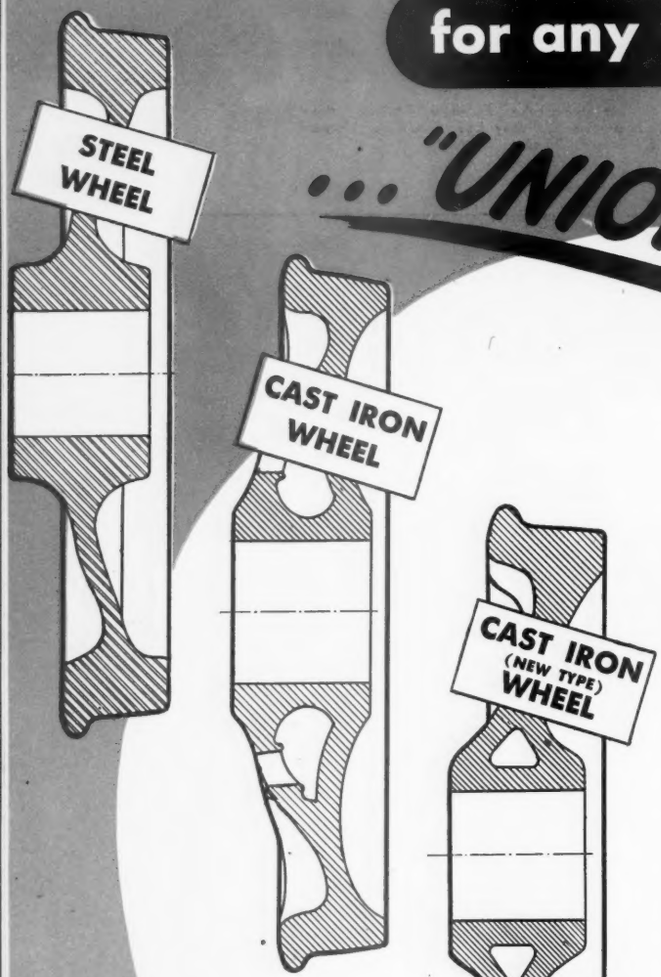

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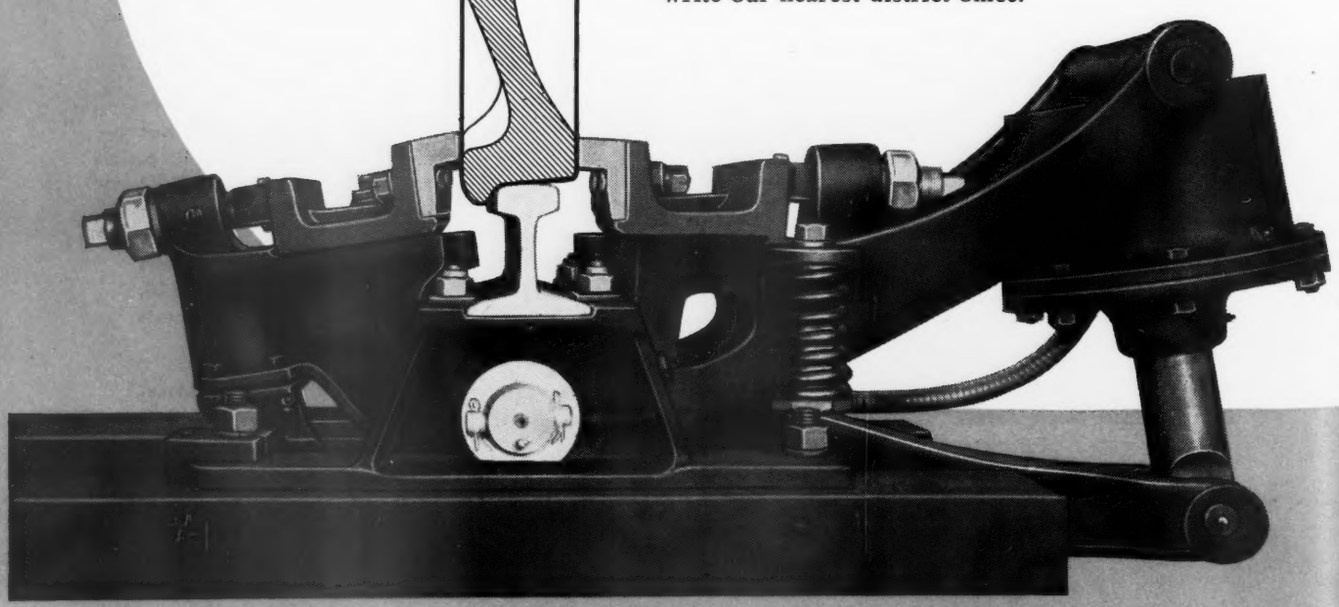

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WEEK AT A GLANCE

HALF THE BATTLE: That the railroads cannot prosper—in fact, cannot even survive as a private enterprise—without a friendly public attitude toward them is, in these days, practically the No. 1 axiom guiding the industry's public relations activities. But a favorable public attitude is not enough, our leading editorial points out. To be effective, attitude has to be translated into action. Surveys show that the public's sentiment now is, and for several years has been, definitely very favorable to the railroads, but the industry's health has not improved enough to relieve its friends of grave concern about its future.

WHAT FRIENDS CAN DO: Those friends who are railroad supply manufacturers have been lending effective support to the creation and continuation of this favorable public opinion. They have a real opportunity—one they are peculiarly able to take advantage of—to apply their influence and energies to combatting the alarming complaisance (or worse) with which powerful commercial and business organizations regard socialistic developments that are injurious to the railroads and threaten the survival of democratic processes in this country. And the supply manufacturers can contribute further to the endurance of a friendly public attitude, meanwhile (and not without advantage to themselves), by unrelenting insistence that the railroads, to assure the best possible transportation service and efficiency, make every possible use of the most recent appliances and equipment those manufacturers have developed.

GAS-TURBINE EXPERIENCE: Westinghouse Electric has a 2,000-hp. experimental gas turbine that has been in test operation more than 1,000 hours, most of the time under conditions simulating the locomotive-service operating cycle. Results are encouraging, and much has been learned that can be used to advantage in the application of this device to actual service, says T. J. Putz of that organization, whose report of the tests forms one of this issue's illustrated articles.

NOT ENOUGH NET: Estimates of the results of operations for this year's first two months appear in the news columns herein. Despite rate increases and general prosperity, the Class I roads' profit was less than in the same 1947 period, $37 million as against $49 million. And the brothers still strive to make expenses bigger.

CAPITAL EXPENDITURES IN 1947: In 1947 the Class I railroads' capital expenditures for equipment and improvements to fixed property were more than 50 per cent greater than in any year since 1930, according to Association of American Railroads' compilations summarized this week in the news section. The edge is taken off the record, however, when comparisons are made in terms of physical property acquired, as prices, on the average, have gone up 78 per cent. Even though the year's outlays exceeded $864 million, the railroads wanted to spend much more, and they would have, if their revenues had been larger and if they had been able to obtain faster delivery of materials on order, cars especially.

BIGGER BRIDGE ON THE B. & O.: An illustrated article in this issue (page 40) throws fresh light on the importance of split-second timing and long and careful preparation when the hour comes to replace an old railroad bridge with a new one. The Baltimore & Ohio, in this instance, replaced six spans of through plate girders with deck girders, employing the same piers and abutments. The operation was carried on without interrupting traffic on a busy single-track main line.

THE BOARD PROPOSES: As was to be expected, the bosses of the three offside op brotherhoods don't want to swallow the emergency board's decision in their wage-increase and rules-change case. At all costs, they must save face. So they threaten to pull a strike as soon as the "cooling-off period" expires, but meanwhile, as our news pages explain, they will "negotiate" some more with the carriers.

CAR AND STEEL SITUATION: The freight car builders—including railroad shops—turned out 9,302 cars in March, thus coming fairly close to the 10,000-car goal for which the steel suppliers have undertaken to provide materials. And the word from Washington is that there has been a "good response" to the latest government plan for "voluntary" rationing of steel for freight car construction and maintenance. This plan, described in this issue's news pages, will, according to its sponsors, make 250,000 tons of steel available monthly for these uses. John L. Lewis is not one of the sponsors, however.

OFFSET FOR LOSSES: Not since the days when railroad passenger traffic was at its nadir has the basic fare been up to the 3.6 cents per mile about which there was then so much argument. But now the eastern roads have gone to the Interstate Commerce Commission with a request for permission to increase fares again so that the rate would be 3 cents in coaches and 4 cents in Pullmans. The application is reported in this issue's news pages.

BETTER-SERVICE MEETING: Resuming a regular annual activity that the war interrupted, the Norfolk & Western last week held at Roanoke the twenty-third meeting of delegates from its system-wide Better Service organizations. A report in our news columns summarizes the procedings of this significant two-day conference. The speakers included principal executives of the railroad and important spokesmen for industry. Physical improvement of the railroad is not enough, they emphasized; it can serve the public as it should only if every employee cooperates.

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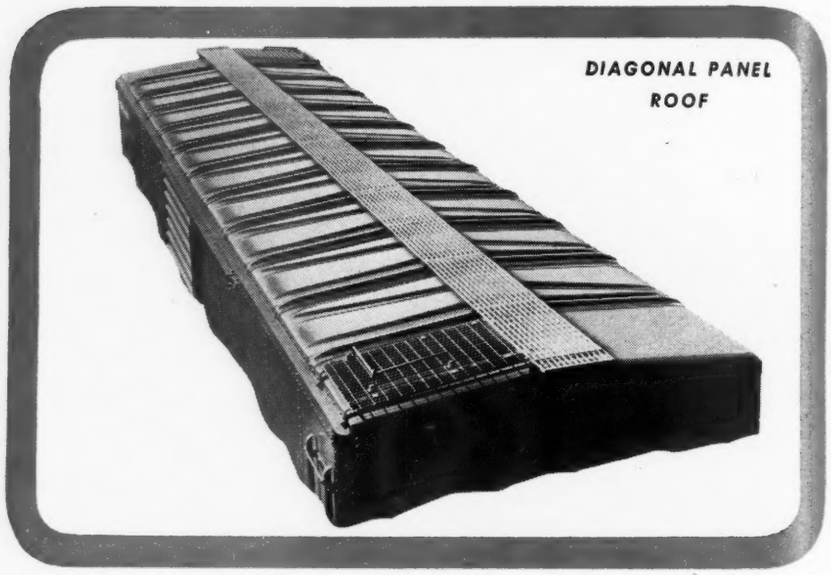
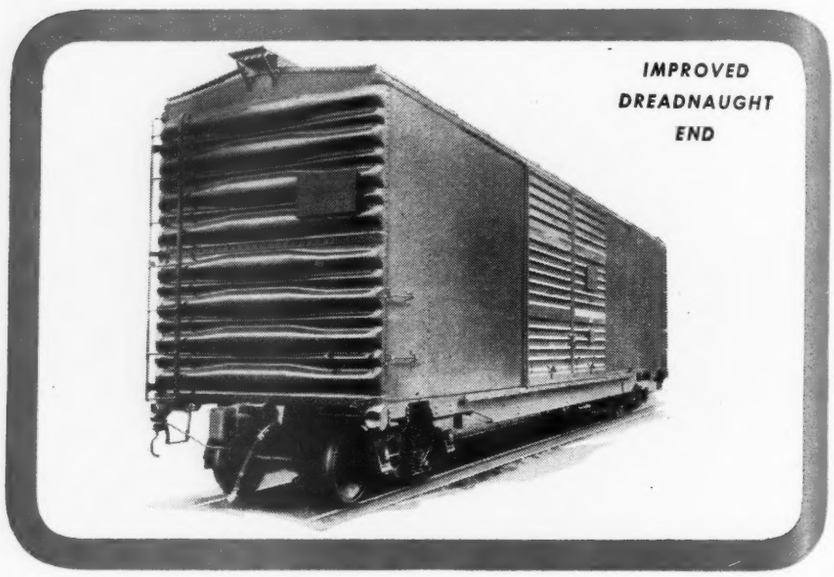


DIAGONAL PANEL ROOF



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RAILWAY AGE

HOW THE MANUFACTURERS CAN BEST HELP THE RAILROADS

Almost exactly a year ago in these pages a letter from a railway president was quoted, in which the writer was critical of the absence of effective support by the railway supply fraternity of the railroads' campaign for adequate revenues. Since that time this question has been actively discussed and there are few who would deny that the supply manufacturers have become much more active and attentive in this direction than ever before.

But has the complete answer yet been given to this challenge? Is it the railroads' primary need simply to recruit more voices for the chorus which is ready to sing their praises on every opportune occasion—or is there not some special and important phase of the railroads' problem of economic, political, and social relations where the efforts of the supply fraternity would be particularly strategic and helpful? Close observation of the situation leads inevitably to the conclusion that the supply manufacturers are in a position to exercise effective support of the railroads in places which are quite beyond the railroads' reach, by their own direct efforts.

Favorable Attitude Not Enough

It has been noted time and again, in these pages and elsewhere, that the railroads need two distinct varieties of friendliness on the part of the public —viz., (1) a general feeling of confidence and respect and (2) active support of specific measures without which the railroads will not be able to prosper. A favorable *attitude* by the public has no real value except to the extent that it can be translated into *action*—on adequate rates and on reducing political favoritism of competitors.

Positive Action Needed

The fact is that the railroads are not suffering seriously at present from lack of public appreciation of the importance of their service, as annual opinion surveys by the Association of American Railroads continue to demonstrate. Sentiment favoring government ownership of railroads has all but vanished. There is no such thing as a surplus of good-will, of course, but the railroads' pressing need certainly lies more in finding effective means to translate favorable sentiment into specific legislative and regulatory action than it does in adding to the general sentiment of friendliness. If the supply manufacturers can add to the "deposits in the bank of good-will," their efforts will doubtless be appreciated—but if they could come up, instead, with some practical method for converting general friendly sentiment into positive action on specific measures to favor free enterprise in transportation, then they would really be rendering an invaluable

service to their country, to the railroads, and to themselves.

Many if not most of the manufacturers of railway products are in a position which enables them to do precisely that. By their membership, actual or potential, in traffic, manufacturing, and commercial organizations, they are placed where they can champion the railways in many forums which the railways themselves are not even permitted to enter. The position of the railway manufacturers in such organizations is of the greatest strategic importance because *every socialistic project which injures the railroads has its origin among members of business organizations,* in most of which the railway manufacturers either are members or could be. Toll-free waterways and superhighways, "reciprocity" and reduction of weight limits on trucks, huge "federal aid" appropriations, tax-built and tax-exempt airports—all these socialistic projects so inimical to the railroads' earnings and prospects—are either condoned or abetted by organizations in most of which manufacturers of railway products have, or could have, a powerful if not a deciding voice.

Exceptional Opportunities

Such opportunities open to railway manufacturers for securing *action* in behalf of free enterprise and the welfare of their customers certainly hold out a far more tangible field for useful service than the most ambitious efforts they could hope to put forth to promote a more friendly public *attitude.*

There is at least one other quite unique way in which manufacturers of railway products are in a position to strengthen the competitive public relations of their customers. This approach can best be described by relating a specific instance of it. There is a manufacturer known to this paper who has a device—to which, incidentally, he has no exclusive rights—which, his specialized knowledge assures him, will be invaluable in enabling the railroads to provide competitively attractive service when a "buyers' market" returns to transportation. This manufacturer could make as much or more money, and would enjoy much more leisure, if he would "leave well enough alone" and wait to merchandise his device until after the railroads actually begin to feel the competitive pinch. But not this manufacturer—he is, instead, busying himself to dramatize to railroad people *now* what their competitive problem is *going to be,* and to persuade them to be forearmed. Can there be any doubt that the effort this manufacturer is putting forth will probably be far more helpful to the railroads, public-relations-wise, than if he were exerting himself in equal measure merely to induce people to understand, in an inevitably hazy sort of way, that the railroads are useful public servants?

NUCLEAR ENERGY VS. COAL AND OIL

To the railroads, the most important potential of nuclear physics is a source of power—aside, of course, from the possibility of its use as a weapon against railway installations. There are two known ways of developing power from the atomic nucleus. One of these is by means of a primary pile. This type of plant would occupy large acreage of land and presumably would produce power in large amounts. It could consume all the available energy from uranium, or it could produce a by-product of plutonium. This plutonium could then be used in smaller secondary plants requiring no more ground space than a steam power plant of the same capacity. The relative cost of power from the primary and secondary plants would depend upon the price charged for the plutonium by-product.

According to one estimate, in a report "The International Control of Atomic Energy," Scientific Information Transmitted to the United Nations Atomic Energy Commission, June 14-October 14, 1946, equality of operating costs between coal power plants and nuclear power plants would be reached if coal cost $10 per ton. Practical economics apparently would limit the number of primary plants to a few locations where there are large load centers. Secondary plants would require large quantities of water, but no facilities for handling large quantities of coal. Their placement, geographically, would therefore entail relatively few difficulties. Sizes of 20,000 to 100,000 kw. of secondary plants would apparently be practicable.

The development of nuclear power plants would not appear to entail any considerable change in our present methods of using electrical power. Secondary plants, at least, would logically come under the operation of existing utilities. Even though further developments should considerably reduce the cost of generating power, it would have little effect on present methods of distribution and consumption. The residential user of 40 kw.-hr. per month pays about 4 cents per kw.-hr. for distribution and 1 cent for generation. A few mills reduction in the cost of power production is, therefore, of little consequence to him. Industries using large blocks of power would be somewhat more affected, but it would appear that no major changes would be caused except where a better location of power source would reduce the bulk shipment of raw materials. In most cases, power would be distributed through existing networks.

Use of nuclear power on locomotives is highly improbable. The weight and size of material required for shielding persons against lethal radiation would be prohibitive. Power plants for ships are a possibility. Any practical application will require years of development. This may be accelerated by

rising prices of coal and oil. The only way in which railroads could use nuclear power in quantity in the foreseeable future would be by means of electrification. In this field many railroads now have experience. Only a few are electrified, but there is little difference between a straight-electric and a Diesel-electric locomotive. Except for the Diesel engine, operating and maintenance requirements are quite similar. To these may be added the gas-turbine-electric now undergoing development. Perhaps nuclear power may induce the addition of some electrified mileage, but it is difficult to see how it can have any profound effect on existing railroad practices.

DETECTOR SIGNAL PROTECTION

When railroads plan for new signaling or the reconstruction of existing installations, they may well give some thought to the inclusion—with the installations they are going to make anyhow—of additional protective devices to detect (1) dragging equipment, (2) rock slides, (3) high water, (4) misplaced bridge spans, and (5) fires on trestles or in wood-lined tunnels. Such special detectors have been used to a limited degree on some railroads for several years. Articles telling of these devices have been published in *Railway Age's* sister publication, Railway Signaling, references to which will be supplied on request.

More extensive use of special detectors has been deterred, perhaps, by a division of responsibility for the initiation of such projects and a lack of understanding of the possible benefits they offer. Signal engineers may understandably be reluctant to propose such devices which might require more maintenance work and be the cause of added signal outages. Likewise, possibly, local operating officers may hesitate to initiate projects which might result in unnecessary train stops, such as those which would occur if slide-detector fences were operated by small rocks presenting no hazard to traffic. Then, too, who is responsible for a derailment caused by a dragging brake beam—the car department, the track forces, the signal department or the train crew? Whoever can answer that question, if it can be answered, will also be able to say which officer should be primarily interested in the installation of devices to detect dragging equipment.

Undetermined jurisdiction invites inaction. Studies to discover the need for these varied forms of protection are likely to prove more fruitful if they originate with executive and higher operating officers, whose authority encompasses all the departments involved.

MAKING RESEARCH PAY

The railroads have been steadily increasing their technological research in recent years. For instance, the annual appropriations made by the Association of American Railroads for the research work of its Engineering division increased from $78,158 for 1938 to $291,840 for the current year. Of course, this figure is only a fraction of the total expenditure for research that is being made this year by the railroads, individually and collectively.

Such outlays are not being made out of mere curiosity. Privately financed institutions cannot afford such indulgence; when large-scale expenditures are made for any purpose there must be the prospect that they will yield a commensurate return in some form. The purpose of research by the railroads is to obtain information that will help to produce a more efficient plant or to make railway service more attractive to the public.

So it is with the research program of the Engineering division of the A.A.R. Some of the studies of this division have now been brought to the point where definite conclusions can be drawn. The intent is that these results will be applied in actual practice by individual railroads and that the advantages thereby realized will constitute the return on the investment in the research program.

These potentially valuable findings are not, however, going to be applied on a satisfactory scale unless those responsible for establishing practices on their respective railroads exert a conscious and continuing effort to familiarize themselves with the results of pertinent research projects, maintaining open minds regarding the adoption of new practices, where research results counsel such action. Such decisions are not always easy, because they frequently involve the abandonment of notions which may have been long and fondly held. Regarding this point, James H. Aydelott, vice-president of the Operations and Maintenance Department, A.A.R., addressing the A.R.E.A. convention in March, had this to say:

"Some people are under the impression that research work has no purpose other than to confirm their own preconceived ideas on established practices. To these people, any data running counter to their ideas or usages should be disregarded as faulty. If railroad research is to attain what it sets out to accomplish, such people must have the courage to admit when they are wrong. Otherwise, time and effort and money expended on such work is wasted and real progress is retarded."

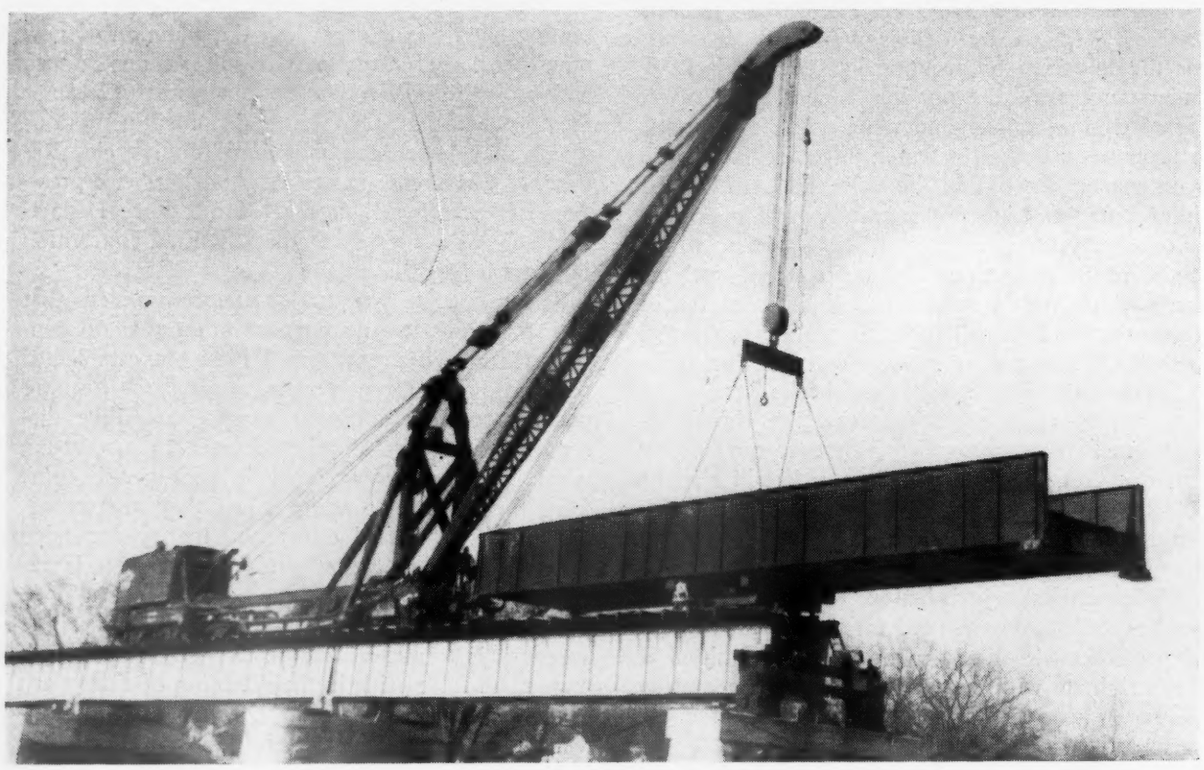
Mr. Aydelott hit the nail right on the head. If research is to attain its objective—better railroading—then false pride in the retention of time-worn practices must be sacrificed, when scientific investigation proves their usefulness has ended.

CAREFUL PLANNING FEATURES BRIDGE JOB

Six-span through-girder structure on main line, erected in 1890, was renewed with deck girders—Handled as units, spans were changed out between trains

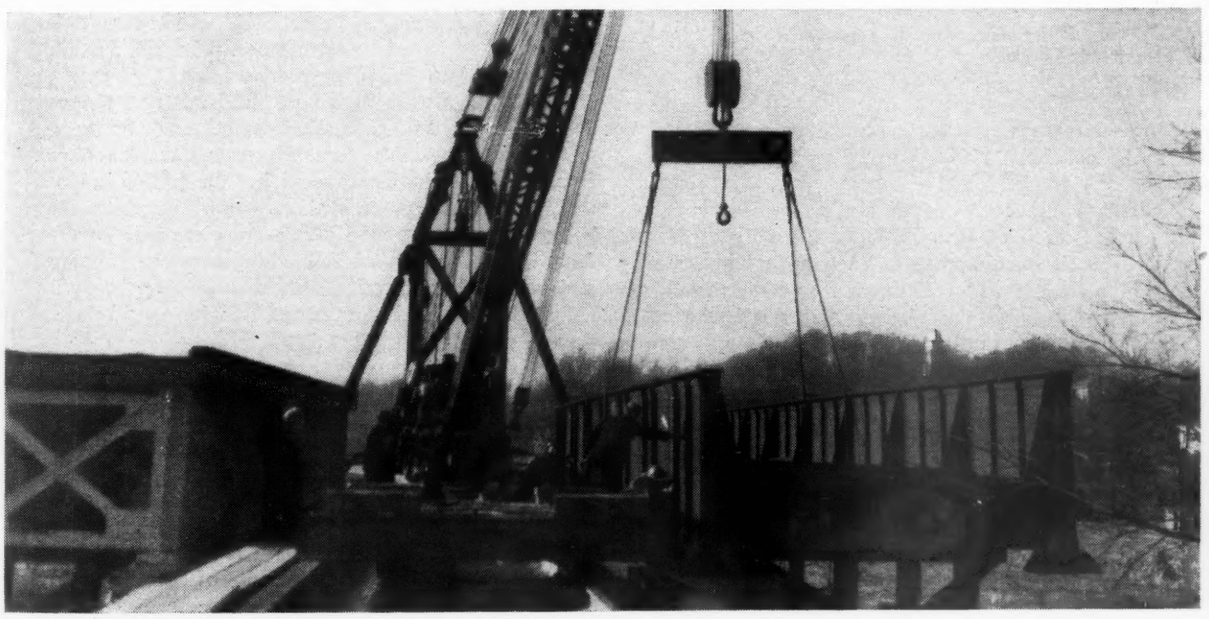
By C. E. SLOAN
Engineer of Bridges
Baltimore & Ohio

Above—A Diesel-drawn passenger train moving across the White River bridge at a time when four of the new deck-girder spans had been placed. A portion of one of the old through-girder spans, raised to the new elevation, is seen at the extreme right Below—The derrick has picked up one of the old spans and is starting to move it to the end of the bridge



The Baltimore & Ohio recently renewed the superstructure of its girder bridge over the White river, at Shoals, Ind., located on its single-track main line between Cincinnati, Ohio, and East St. Louis, Ill. Through careful preliminary work and by renewing the spans as units, the project was carried out in six successive steps, between trains, without interrupting traffic over the structure. Built in 1890, the old bridge was light for the power operated over it, and for many years a severe speed restriction had been in effect over the structure for the heavier freight engines. This operating handicap was a contributing factor in bringing about the decision to renew the steelwork.

The traffic over this line consists of a considerable number of fast passenger and freight trains in both directions, and at this particular location train movements are rather evenly distributed during the daylight hours. The working period between scheduled trains, with their creditable and rather jealously guarded on-time performance record, could not be temporarily extended for these operations, or otherwise disturbed. Consequently, to permit the work to



Above—The bridge after the old deck spans had been raised to conform to the new grade line. Note new masonry at top of piers. Below—Depositing an old span on the temporary bents at the west end of the bridge in preparation for picking up the new span (at left) and transporting it to the proper location in the bridge

Lowering one of the new spans into position. The ties and rails are already in place

be done without interfering with traffic every detail had to be carefully planned in advance, and before breaking the track.

The old bridge consisted of six spans of through plate girders, each 74 ft. 6 in. long, and with girders spaced 14 ft. 2 in. on centers. Each span had seven panels of stringers and rod bracing passing through slotted holes in both the girders and the stringers. There were 36 separate members in the floor system of each span, which would have made it very difficult to remove the spans in the limited time available by the ordinary method of burning and removing the floor members in groups. Fortunately, and unlike many old bridges of this type, end floorbeams had been provided, and this feature was of material aid during the renewal work, since the use of timber blocking was minimized.

The substructure consists of five old stone piers and two stone abutments. Two of the piers, and presumably also the abutments, are said to have been constructed in 1863 (this railroad was opened to Vincennes, Ind., in 1857), and evidently supported three truss spans originally, equal in length to the present six girder spans. Three piers were added about 1890 when the through girder spans were placed. Built of Bedford limestone, these three piers were found to be in excellent condition, and very little grout could be forced into them during the repair operations.

Grade Raised 4.6 Ft.

For replacement of the superstructure it was found feasible to use six spans of deck girders of the same length as the old spans and to provide an equivalent waterway area by raising the track an average of 4.6 ft. over the bridge, figuring a minimum depth for the girders of about one-twelfth of the span length. This shallow depth, as well as the effect of designing the spans for Cooper's E-72 loading, added to the weight of new steel required. However, because of the change from through girders to deck girders, the new steel superstructure was only about 12 per cent heavier than the old one.

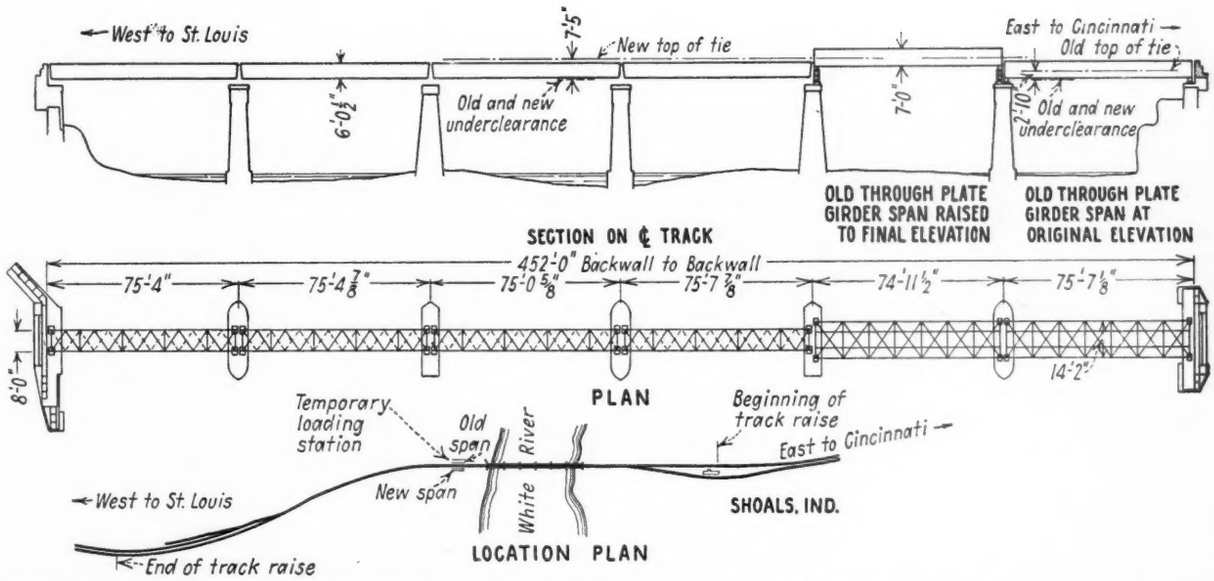
For instance, a new steel span weighs about 108,500 lb., as compared to 97,000 lb. for an old one. Including ties, a new deck span weighs about 75 tons and an old through unit about 60 tons. These were the weights of the units as handled during erection, the lighter old spans being, of course, more cumbersome because of their width.

The substructure was altered and repaired by removing three courses of masonry from the tops of the two old piers and two courses from the tops of the later piers and the east abutment. This old masonry was removed before the track raise was made. Temporary timber blocking was used under the shoes and steel grillage beams were then substituted for the blocking. These grillages were then encased in concrete, placed under traffic conditions, to form new pier caps or coping courses about 1 ft. 6 in. thick for the piers of 1890 and the east abutment, and about 3 ft. thick for the older piers, depending on the number of courses removed.

The grillages were made 20 ft. in length, not only to accommodate the old girder bearings (14-ft. 2-in. centers), but also to distribute the load from the new deck girders (8-ft. centers) over as much of the old piers as was feasible. Several courses were removed from the west abutment, requiring the use of supports and the temporary removal of load while placing the heavy concrete cap, and also a complete new concrete face. The backwalls of both abutments were removed and rebuilt in a heavier section of concrete to withstand the 4-ft. 6-in. increased height of fill behind them.

All the old masonry was extensively pressure grouted and pointed. This part of the work was performed by a firm specializing in such repairs. The two former truss piers were also covered with shotcrete by this contractor to arrest the weathering and erosion of the stone.

With the masonry repairs and alterations well under way or completed, the raising of the old superstructure was begun in increments of 8 to 12 in. and, at the same time, the immediate approaches were



Plan and longitudinal section and location plan of the White River crossing of the B. & O., showing the relationship of the old through-girder spans to the new grade line, before and after they were raised to the final elevation prior to being replaced with the new deck-girder spans

raised. The raise over the bridge involved the placing of about six feet of timber blocking under each old shoe when the track was brought to final elevation. The blocking in each case was, in effect, a timber crib, securely spiked and drift bolted against tractive and braking effects. It was arranged for quick cutting along the center line of the pier, so that one-half could be readily removed when changing a span.

The work of repairing and altering the old masonry, as well as raising and blocking the old structure, was carried out by the division maintenance forces of the railroad. The steel grillages were fabricated in the railroad's structural shop at Martinsburg, W. Va.

The track raise on the west approach extended for a length of about 2,000 ft. and was made in order to obtain a suitable grade. Most of this raise had already been made when the work of raising the bridge was started. The greatest part of the filling material at this end was placed by contract. The raise at the east end was short, and in carrying it out improvement was effected in several grade crossings in the town of Shoals, as well as in the drainage conditions at these crossings.

For carrying out the erection work, a suitable siding and yard were already in existence, located about 1,500 ft. west of the bridge. The erection contract was let to the American Bridge Company, which also fabricated the steelwork under separate contract. This arrangement was advantageous, as coordination of steel shipments with their receipt and unloading at the bridge site was greatly facilitated. Another favorable factor in the erection was the use by that company of an 80-ton capacity combination crane and derrick car, which proved ideal for the removal of the old through spans as units and the placing of the new deck spans. An unfavorable factor was the cold weather that prevailed during the time of erection (January of the present year).

The six new spans of deck girders, 9 ft. 6 in. wide over the flanges, were shipped completely fabricated. When received they were unloaded along the siding and the treated timber decks were fitted to each span in readiness for placing. To conserve working space three spans were stored on top of the other three. As a preliminary step to the erection work bents or blocking were prepared on the north slope of the track fill, just west of the bridge, for the temporary receipt of each of the old spans when it was removed. On the south, or opposite, side of the track were placed similar bents for the temporary receipt of each new span while the corresponding old span was being removed. Bearing seats were also prepared for the hinged outriggers on the derrick car when making side lifts for handling the spans to and from these temporary receiving stations.

The longest time interval between trains occurred in the afternoon, and all six spans were placed in this period, the first on January 7 and the last on January 16. In making a change of spans the procedure was, at some time previous to breaking track, to place the new span on the temporary receiving station at the west abutment.

Then, when the last train had passed over the structure at the beginning of the erection period, the track was broken, and the rails removed and shifted eastward to a position on the adjacent span, this work being done by the railroad's track gang using a locomotive crane.

Changing the Spans

While this was being done the derrick car was traveling from the siding to the lifting position, just west of the span to be removed. The derrick car then picked up the old span, including its timber deck, attachment being made by the use of four slings. The derrick car and the old span were then moved back to the temporary receiving station, where outriggers

were blocked and the span deposited in the clear of traffic on the prepared bents.

Next, the new span was picked up and lifted onto a truck assembly or push car, which was placed ahead of the derrick car, and moved forward onto the bridge, where the span was again picked up and deposited in place, ahead of the push car. The length of the boom and the capacity of the derrick car permitted this extra reach.

The push car was then taken back to the loading place and the derrick car moved beyond to the siding for clearance, while the rails were being placed over the new span. Beginning with the west span this operation was performed progressively throughout the length of the structure.

From the time of breaking the track until it was restored the average elapsed time was 2 hr. 10 min. for the six operations. The longest period—for the third move—was 2 hr. 34 min., and the shortest was 1 hr. 56 min., the latter record being made on the first change of spans at the west end, January 7. The average time required for erecting a span, exclusive of restoring the rails, was 1 hr. 26 min. The shortest period for the operation was 1 hr. 12 min., and the longest was 1 hr. 34 min.

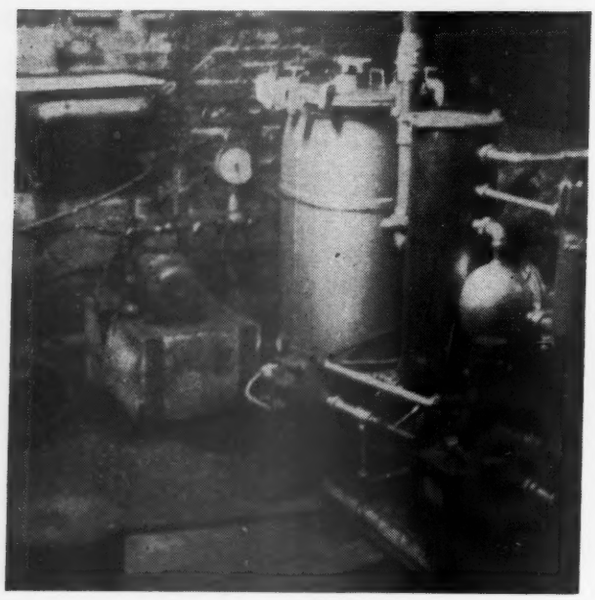
The floor systems and ends of the girders of the old spans were removed and loaded for scrap. The shortened girders will, it is expected, be used in deck spans on branch lines, as opportunity occurs.

For the railroad company the work in the field was in charge of W. O. Trieschman, representing J. P. Ray, regional engineer, Cincinnati, and A. J. Wegmann, representing the writer. J. H. Griffin acted as superintendent for the American Bridge Company, representing John Lowery, manager of erection, Pittsburgh, Pa. Repair work on the masonry and the raising of grade over the structure were carried out under the supervision of P. W. Elmore, division engineer.

WATER SOFTENER FOR USE ON DIESEL LOCOMOTIVES

The Watermaster is an adaptation of the Servisoft system of domestic water softening for use on Diesel-electric passenger power to increase the flexibility of locomotive assignments. The complete treating unit can be installed on the locomotive to permit the use of any available water supply ranging from water already treated for steam-locomotive consumption to heavily silted or muddy waters. With the water-softening installation, fully de-ionized water is furnished to the steam generator regardless of the condition of the water supply.

The process is said to remove the scale-forming carbonates and sulphates, rather than replacing the original salts with different compounds. Fresh minerals are supplied at the beginning of each locomotive trip. At the completion of the run, or when the minerals are exhausted, they are removed to a reclamation plant to be regenerated with soda ash and sulphuric acid for further use. The minerals are contained in porous bags to facilitate replacement.



A test assembly of the Watermaster

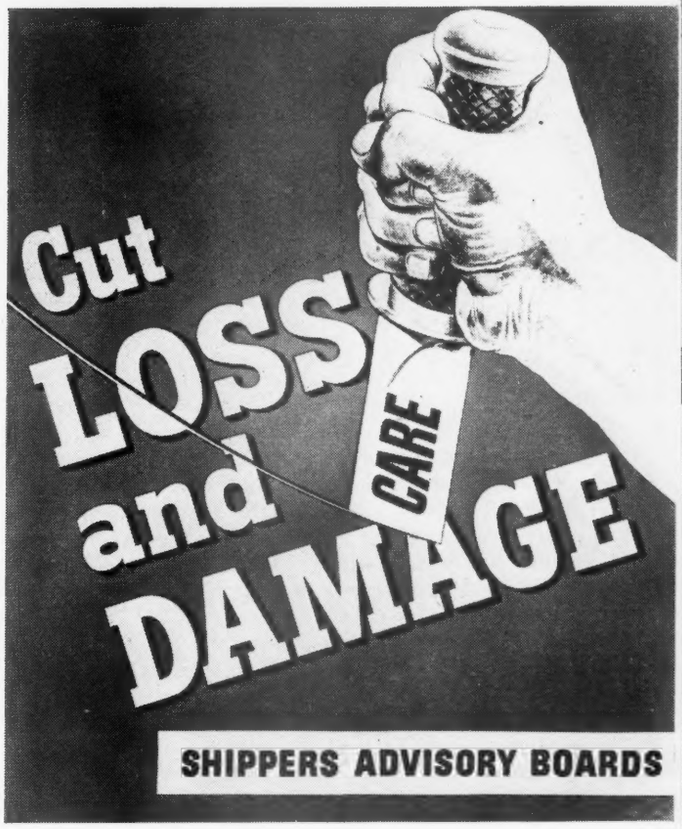
Watermaster equipment consists of a raw-water pump, a diffusion chamber to remove oxygen and carbon-dioxide gases, a heat-exchanger unit, a float control and a small tank containing the de-ionizing anion and cation minerals. In the de-ionizing tank the scale-forming compounds are removed from the water by the minerals in the porous bags, which minerals serve also to filter the water in its passage through the tank. As the water leaves the de-ionizing tank it passes through a heat-exchange unit and is fogged, together with steam from the separator of the steam generator, into the diffusion chamber. This is a small covered container which has a vent to the atmosphere and a float control. The float control maintains the water at a level that assures a supply of conditioned water for the boiler feed pump at any rate of consumption.

The chemical process of de-ionization occurs in two steps. In the first step the anion mineral changes the carbonates and sulphates into various acids. These acid ions, with the exception of those of carbonic acid, are removed in the second step by the cation mineral. The carbonic acid, being unstable, breaks down in the diffusion chamber into carbon dioxide gas and water; and the carbon dioxide is vented to the atmosphere, thus leaving only the completely de-ionized water to be transferred by the feed pump from the diffusion chamber to the steam generator. If a slight after treatment is desired this may be introduced in solution form with the small chemical injector furnished with the generator.

The Watermaster is a product of the W. M. Corporation, 608 South Dearborn street, Chicago 5. It has a water-treating capacity of 12 gal. per min. or 720 gal. per hr.

DRIVE TO SAVE DAMAGE DOLLARS UNDER WAY

Twelfth Annual "Perfect Shipping Campaign" enlists carriers, customers and package manufacturers in common battle on waste



Above—The 1948 "Perfect Shipping Campaign" poster. A total of 225,000 copies have been distributed

Left—Irving M. Peters, general chairman of the National Management Committee, is serving for the second year

When the annual April "Perfect Shipping Campaign" was inaugurated 12 years ago, a small group of Shippers Advisory Board members and representatives of the Association of American Railroads pondered long and thoughtfully on the question of a good title for the drive. The idea, it is said, was advanced by a San Francisco department store traffic man, who suggested a week devoted to the improvement of shipping methods to cut loss and damage. The group considering his proposal decided, first, that the campaign should be expanded to a month so that a sufficient number of people in the shipping and transportation business could be reached and the importance of the problem appreciated. They decided, second, that the name of the campaign should express not only its nature, but its goal. They, therefore, chose "perfect" to characterize the drive. And, because "loading," "transportation," "packaging" are each of them only a partial field for the reduction of loss and damage, the word "shipping" was selected for the drive. In choosing it, the fathers of "Perfect Shipping Campaign" emphasized that the fight against waste involved the work of everyone having anything at all to do with the movement of freight or the preparation for its movement. They included in the campaign not only the yard crew which switches the freight car, but as well the man who designs a carton for the movement of any particular commodity; not only the trucker in the freight house, but the man who stencils the consignee's name on the side of a shipping crate.

There is evidence that the twelfth annual "Perfect Shipping Campaign" is enlisting the support and interest of all parties in the "shipping" business. In the belief that training is the prime weapon against loss and damage, the carriers, shippers and manufacturers of shipping accessories are this month pushing training programs beyond the quantity and quality of previous years.

The motion picture; the humorous, professionally prepared pamphlet; the psychological poster; the ingenious demonstration and the well-prepared inspirational talk are among the tools which the entire field of shipping is using to "educate, educate, educate."

Railroads are educating yard employees; shippers are educating packers; manufacturers of boxes and fastenings are educating shippers; shippers, in turn, are educating package manufacturers. It is a reciprocal process, in which the experience of each party is being crystalized in communicable form and passed along, in line with the best and latest principles of education, to the other party and his employees and to each group's own personnel.

Most widespread of the training literature prepared specifically for this April's drive are 225,000 posters (illustrated herewith) designed for display in shipping rooms, in crew quarters and in freight houses, to

center attention on the program. To enlist the full support of shippers, a six-page pamphlet has been distributed, to the tune of 337,000 copies, through Shippers Advisory Board channels and by the railroads to their customers. This pamphlet calls their attention to the mutuality of interest in reducing loss and damage—i.e., everybody loses, not just the carriers. Emphasis is placed on well-designed shipping containers and on proper marking.

On their part, the railroads, through the Freight Loss and Damage Committee of the Freight Claim Division, A.A.R., have made available to employees engaged in the physical handling of freight and cars, 400,000 copies of a humorous illustrated pamphlet entitled "Somebody's Taking Bites of Our Pie!" This piece of literature paints freight loss and damage as a villain which steals a big bite from the income "pie" of the railroads in which employees share. A sample list of good handling practices is presented in the most palatable form possible.

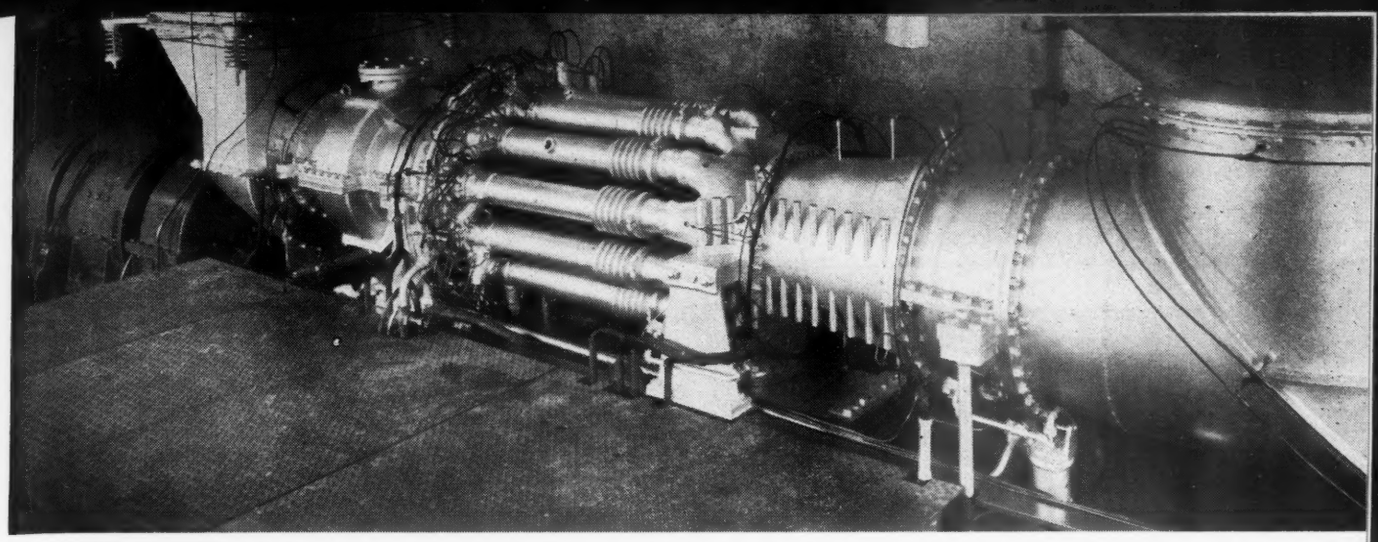
Among other activities too numerous to list, the railroads are sending instructions cars over the lines to reach operating and station employees with discussions, lectures and films, including the new A.A.R. motion picture on proper switching entitled "Easy Does It," which has a tight booking. Virtually every railroad employee magazine in the country is carrying a feature article on the "Perfect Shipping Campaign." Training efforts in freighthouses and in freight yards are being intensified. Posters and pamphlets by individual railroads have appeared in growing numbers.

The National Industrial Traffic League has dignified the campaign with a special letter to its members advocating their full support of the drive, with suggestions for participating. Member clubs of the Associated Traffic Clubs of America are active in the distribution of literature and holding panel meetings and demonstrations on good shipping methods.

As in the past, the "Perfect Shipping Campaign" is under the direction of the National Management Committee of the Shippers Advisory Boards. I. M. Peters, traffic manager of the Corn Products Refining Company, Chicago, is general chairman for the second year. His vice-general chairmen are: H. M. Frazer, general traffic manager of F. W. Woolworth Company, New York; T. F. McCue, traffic manager of the Crane Company, San Francisco; and L. A. Schwartz, general manager of the New Orleans Traffic & Transportation Bureau, Atlanta.

The remainder of the committee consists of the hard-working chairmen of the loss & damage prevention committees of each of the 13 regional boards. Upon these men fall the responsibilities of personal time and effort devoted to more perfect shipping methods in their board territories. Their names are listed as a directory of those customers of the railroads who are outstanding in the education of the shipping world in working procedures to reduce loss and damage: J. W. Swoger, traffic manager, Knox Glass Associates, Inc., Pittsburgh, Pa.; H. H. Ellsworth, executive secretary, Utah Citizens Rate Association, Omaha, Neb.; H. E. Chapman, traffic manager, S. S. Kresge Company, Detroit, Mich.; C. D. Couch, district traffic manager, Glidden Company, Chicago; Arthur P. Little, general traffic manager, Dennison Manufacturing Company, Boston, Mass.; E. G. McGovern, general traffic manager, Gamble-Skogmo, Inc., Minneapolis, Minn.; C. T. Coy, traffic manager, Eli Lilly & Co., Cincinnati, Ohio; A. C. Street, manager, Barlay Traffic Service, San Francisco, Cal.; George O. Wilson, traffic manager, Montgomery Ward & Co., Seattle, Wash.; C. W. Strickland, general traffic manager, Cone Mills Corporation, Atlanta, Ga.; H. F. Easterling, traffic manager, Brown Paper Company Inc., Dallas, Tex.; and F. L. Ruland, assistant general traffic manager, Gaylord Container Corporation, Kansas City, Mo.

Interior of a new cafeteria at Liverpool street station in London, England, opened December 31, 1947, for hurried travelers



Experimental 2,000-hp. gas turbine. Reading from left to right are two d.c. generators, gear, air intake, axial flow compressor, multi-element combustors, gas turbine, and exhaust. The unit is 26 ft. long, 6 ft. high, and 3½ ft. wide. It weighs, complete, 19 lb. per horsepower

GAS-TURBINE OPERATING EXPERIENCE

Performance of Westinghouse 2,000-hp. unit found to accord with design predictions after more than 1,000 hours of test operation — Locomotive-service operating cycle simulated

By T. J. PUTZ

Manager, Locomotive and Gas-Turbine Engineering Section, Marine Turbine Engineering Department, Westinghouse Electric Corporation

A year ago Westinghouse announced an experimental 2,000-hp. land gas turbine. Tests on the turbine, while incomplete, have gone far enough to confirm hopes of its originators. The experience gives substantial evidence of the gas turbine's eventual success for industrial and transportation use.

In more than 1,000 hours of test operation the performance of the 2,000-hp. gas turbine has been essentially in accord with design predictions. Operation under all types of load conditions and up to the design temperature has caused no objectionable distortion and no serious creepage. The unit has not operated without difficulties but they have not been of fundamental nature and have been such things as can be corrected readily in new designs. On the whole, at this stage, the experimental evidence points to the soundness of the general design employed in this form of simple, open-cycle gas turbine.

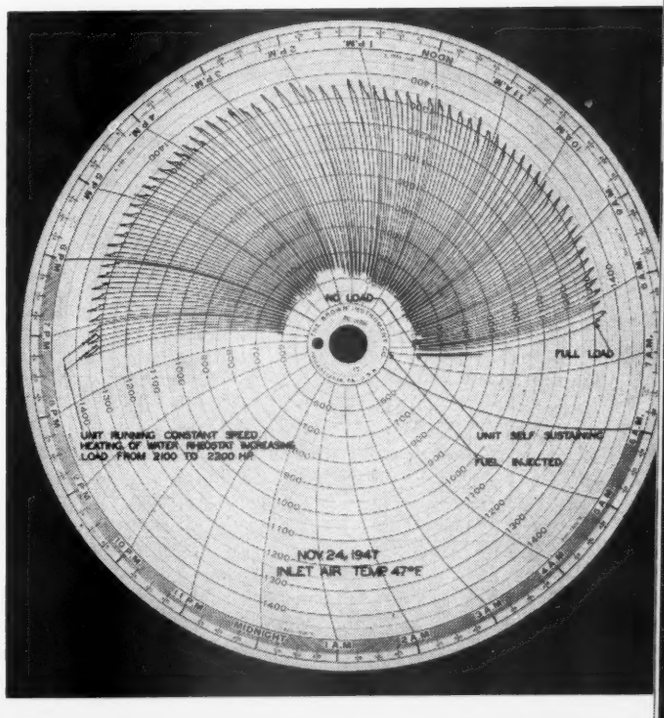
The turbine has been on test since August 1, 1946. The unit has been operated approximately 1,000 hours, of which more than 850 hours have been accumulated since July 9, 1947. Three hundred hours of operation have been spent in evaluating the performance of the unit and its components. The remainder of the time has been used in simulating the more severe operating cycles expected on this type of unit in actual service.

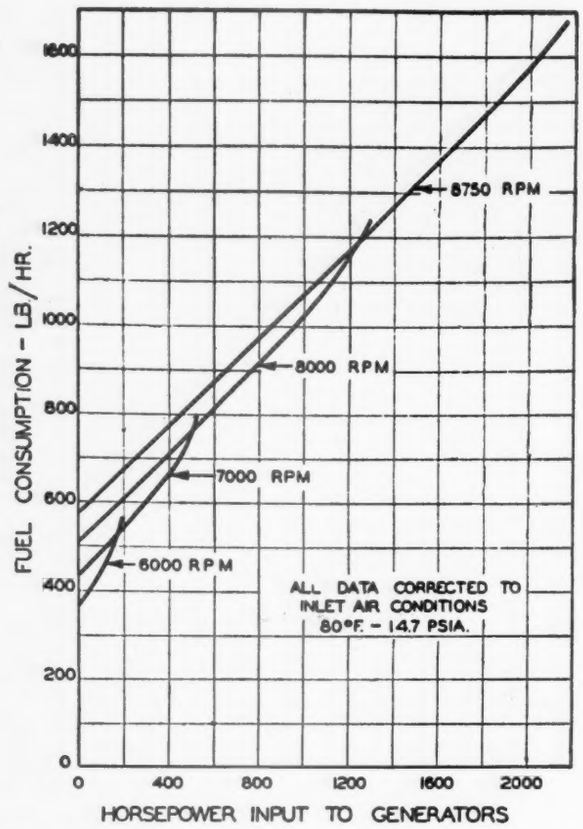
Accurate overall performance has been established by reliable measurements of power output, fuel flow, speed, air inlet temperature, and atmospheric pressure. The overall fuel rate at full load is 0.78 lb. per hp.-hr., which corresponds to a thermal efficiency of 16.7 per cent based on the fuel having a heat value of 19,500 B.t.u. per lb. The maximum output obtained on the unit has been 2,200 hp. when operating with an air inlet temperature of 48 deg. F.

Evaluation of the component performance, even of this simple type gas turbine, has been difficult. Many changes in instrumentation and laborious heat-balance calculations were required to achieve desired results.

The compressor performance was established by measuring air flow, inlet and discharge pressures, and temperature rise. The adiabatic compression efficiency

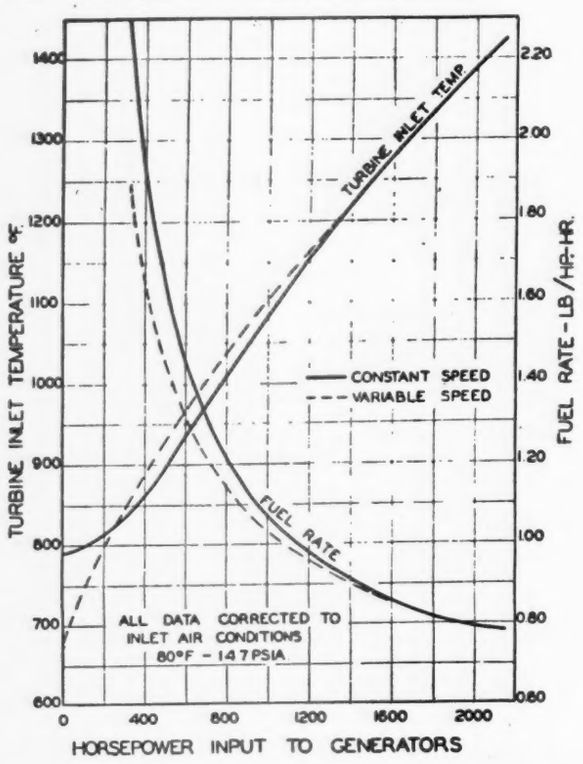
A representative temperature record chart of cyclic tests on the gas turbine simulating locomotive service. Temperatures of 1,300 to 1,350 deg. F. correspond to full load, while 600 to 650 deg. F. represents no load. At full load the chart shows a gradual increase of temperature from 1,300 to 1,350 deg. F. during a five-minute period





Above—The relationship of fuel consumption to speed and power output

Below—Variation in the fuel rate and turbine inlet temperature with variable-speed and constant-speed operations



was found to vary from 80 to 86 per cent over the entire operating speed and load range.

To determine the turbine efficiency in a complete plant without a dynamometer between compressor and turbine requires the accurate measurement of inlet and exhaust temperatures and pressures. Of these the temperature of the combustion gases as they enter the turbine is particularly difficult to measure. Three methods were used in this determination: (1) direct measurement, using specially designed, shielded-type temperature probes; (2) calculation, taking combustion efficiency as 95 per cent, measured air and fuel flow, measured combustion inlet temperature, and neglecting all radiation losses; (3) calculation, using the measured turbine exhaust pressure and temperature, measured inlet pressure, and turbine work by heat-balance calculation.

Measuring Efficiency

The turbine efficiency as obtained using the temperature recorded by direct measurement gave least reliable results, while the second and third methods were quite consistent and in close agreement. The turbine efficiency varied from 84 to 86 per cent over the operating range. This is about two points lower than that obtained with earlier test results and is due to the increased radial tip clearance, found necessary for rapid changes in loading.

The combustion efficiency, using specially designed air-atomizing nozzles, was found by heat-balance calculation to vary between 94 and 96 per cent. These values agree closely with those obtained on separate combustion tests at our research laboratories.

The unit has been started from a cold standstill condition 350 times and has undergone several thousand cycles of rapid load changes from no load to full load. Loading and unloading cycle tests have been made to prove its load-response characteristics. Probably the most severe load cycle to be encountered in actual service will be in locomotive operation where continuous loading and unloading occur. This corresponds to rapid temperature changes of from 600 to 700 deg. F. on the turbine and combustor, the turbine inlet temperature being 1,350 deg. F. at full load and 600 to 750 deg. F. at no load. To simulate locomotive operation, the unit was run at full load for 30 min., then immediately unloaded and run for 30 min. at no load, whereupon load was reapplied in 10 to 20 seconds, and the cycle repeated. This cycle was then changed to limit the loaded and unloaded time to 10 min. instead of 30. To accelerate the test program, a further change to 5 min. was made when tests established that this time was sufficient to heat or cool the parts of the unit subjected to rapid temperature variation. A typical load cycle of speeds, fuel consumption, and power is shown in one of the graphs.

The unit is very easy to start, one generator being used as a motor. The time required is a function of the starting power available. When this power is limited to a maximum of 35 kw. the unit can be started in about 2½ min. With a maximum of 80-kw. starting power the unit can be started in 1 min.; with 20-kw. the time is 8 min. When the rotor reaches 15-per cent speed the acetylene igniters are turned on, and at 25-per cent speed the fuel is injected. The

starting power is shut off at the end of 1½ min., and the unit reaches a stable self-sustaining speed in about 2½ min. A gas turbine of this type can be operating at full capacity 10 min. from the time starting is initiated or even less if necessary.

During the early weeks of the test period, the compressor inlet and exhaust ducts were equipped with sound suppressors. When it became apparent that the noise level in the test house and the surrounding areas is reasonable and is not objectionable to the operators or the workmen the suppressors were removed.

The unit has also been operated without an air filter at the compressor inlet. In this respect we are less fortunate than our Swiss friends who have clean, fresh, mountain air available. The compressor blading becomes excessively dirty after approximately 100 hours of operation. This fouling with oily, dirty soot causes a drop in compressor efficiency of about two per cent, and it is then necessary to wash the compressor blading. The washing operation consists of turning the unit over slowly with a starting motor, spraying a non-corrosive commercial solvent into the compressor inlet, allowing it to soak for a few minutes, and then washing it off with a steam spray. This can be done without dismantling any part of the compressor.

Operating Mishaps

Operation of the unit has not been entirely devoid of trouble. Two important casualties have occurred, one on the turbine and the other on the compressor. In anticipation of such difficulties, partially completed replacement parts were available. Nevertheless, approximately three months were required to restore the unit to operating condition in each case.

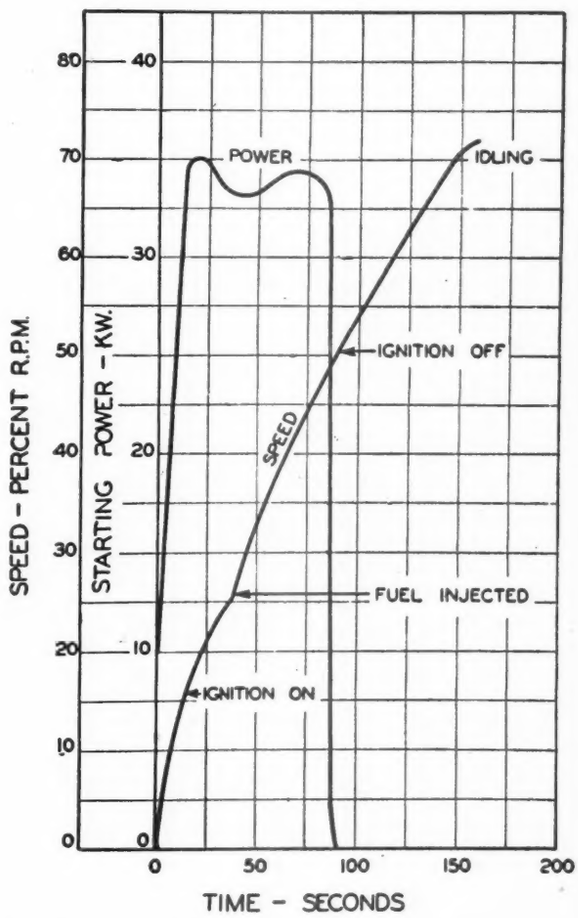
The first mishap was a failure of the turbine blading following 57 hours of operation. This was caused by a severe rub caused by movement of the turbine inlet-bearing support on rapid temperature changes. Tests made subsequent to the failure indicated that the inlet-bearing support deflected downward approximately 1/16 in. with sudden increases in temperature, returning to its correct position after temperature equilibrium was established. The method of supporting the turbine inlet bearing has been changed and no rubs have since occurred.

The second casualty was a failure of the stationary compressor blading after 125 hours of operation. The blades failed because of fatigue at the blade root due to forced vibration. Fortunately, the failure was discovered before many blades failed completely. The rotation blades, except for the last row which was replaced, were undamaged. The stationary blading was replaced using the original blade design, modified to accommodate a riveted shroud.

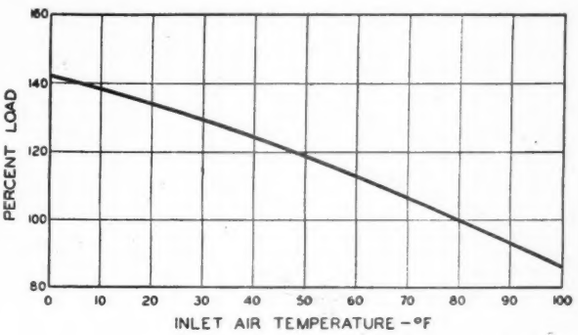
Strain gages were also installed on this blading, and have revealed the nature of the forced vibration. Although some minor mechanical failures in the stationary blading are still occurring because of the difficulty of incorporating all the desirable features in an original design, future designs should be entirely free of this trouble.

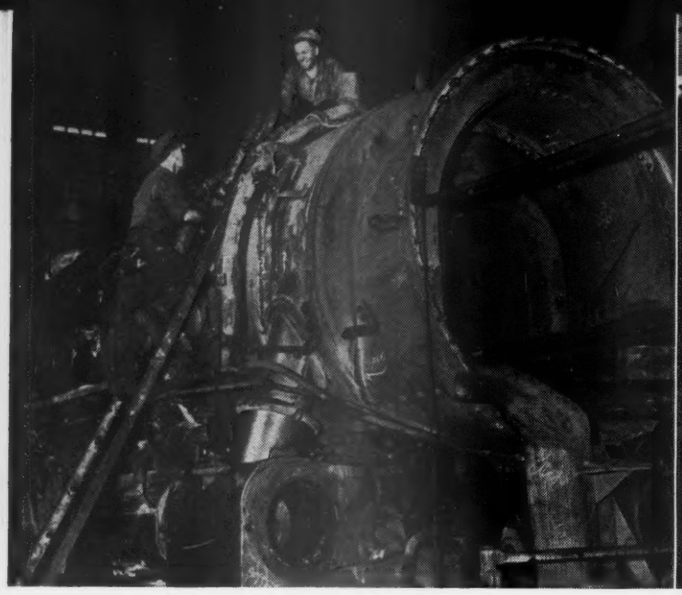
A No. 3 furnace oil has been used as the fuel for most of the testing. Tests have also been made with Bunker C oil, which showed an increase in plant fuel rate of approximately eight per cent, partly due to its lower heating value and partly to lower combustion efficiency. Investigations made after 30 hours of operation with the Bunker C oil revealed erosion of a critical part of the fuel nozzle that seriously affected its spray angle. Subsequent tests made with these nozzles showed that this change in spray angle, while seriously affecting the efficiency when using the Bunker C oil, had no appreciable effect when the No. 3 furnace oil was used. A new set of nozzles designed to eliminate erosion is now in use.

(Continued on page 57)



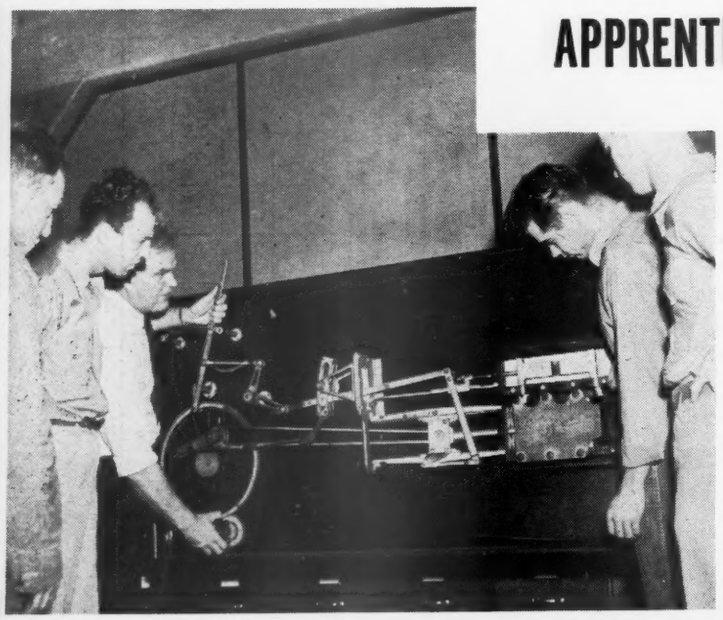
Above—Performance during typical cold start from standstill, showing the starting power required. Below—Effect of inlet air temperature on capacity with the gas turbine running at maximum speed and a constant turbine inlet temperature of 1,350 deg. F.





Above left—Apprentice assisting in applying superheater units on a locomotive. Above right—Apprentice and blacksmith helper working on locomotive brake rod

APPRENTICESHIP TRAINING REVITALIZED

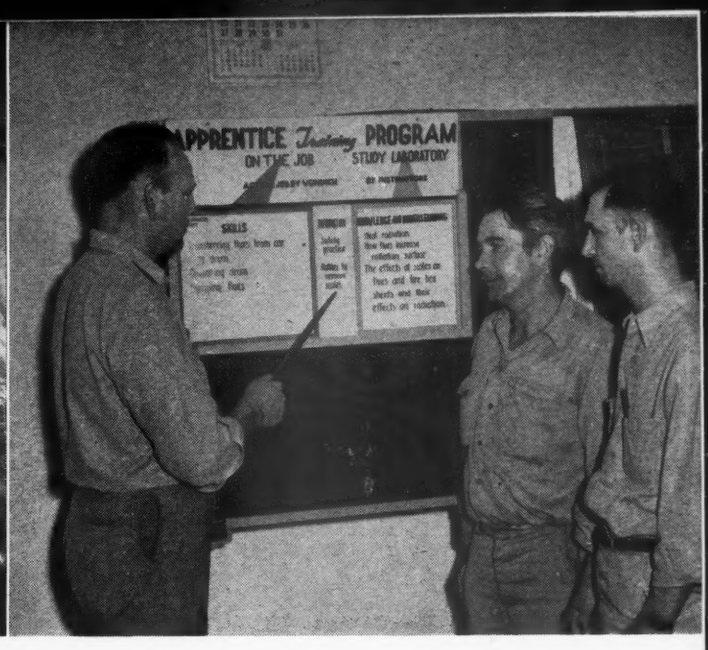


New York Central Apprentices at Work

Left—Instructor explaining operation of Walschaerts valve gear to apprentices

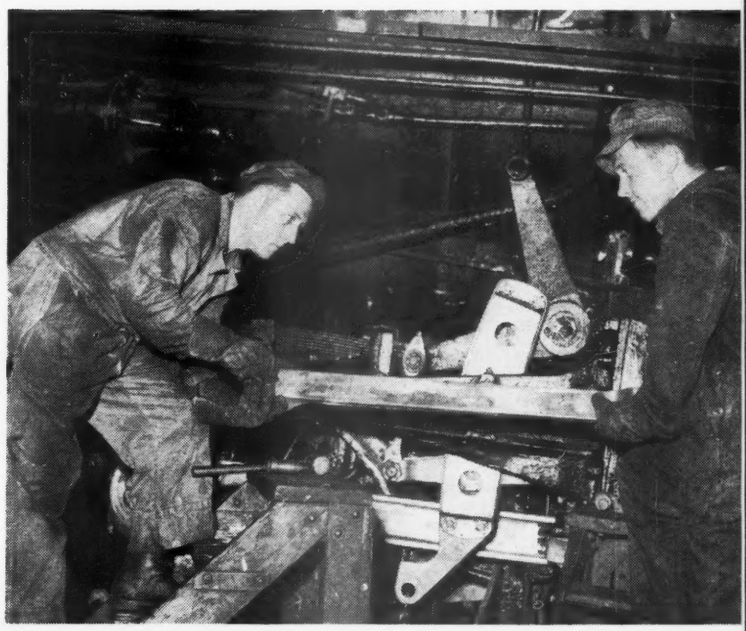
Below left—Apprentice working with mechanic on repairs to locomotive booster engine

Below right—Electrician apprentices repairing armature



Above left—Apprentice being instructed in bending steam trainline pipe. Above right—Boiler maker apprentices receiving instruction on cleaning of flues

(See article by Edward E. Goshen, in the Railway Age *of April 3, 1948, page 38.)*

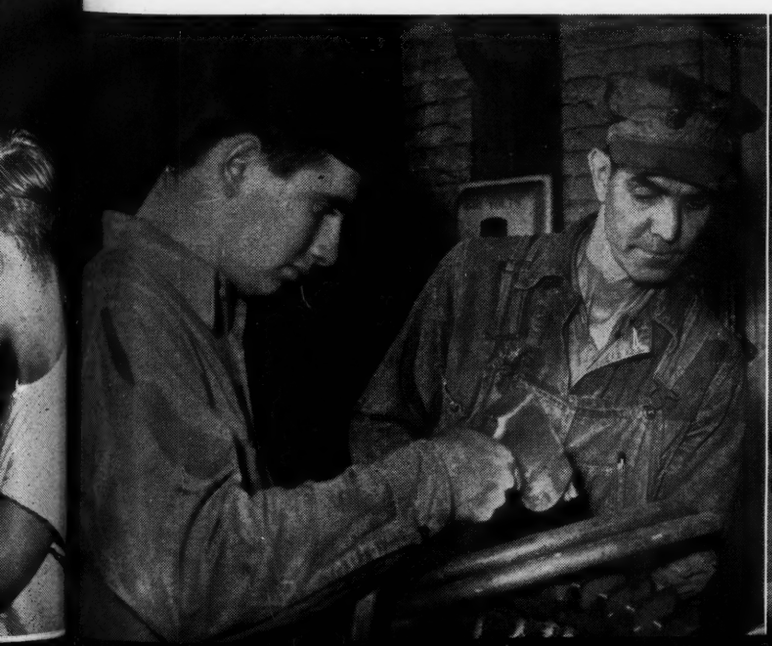


Union Pacific Apprentice Activities

Right—Apprentice assisting in hanging motion work on a locomotive

Below left—Apprentice working with mechanic in Magnafluxing a Diesel switcher drive gear and axle

Below right—Receiving instruction in hammer-forming copper steam table for dining car kitchen



TRAIN COMMUNICATION SAVES ROAD TIME

Extensive project on 193 mi. of the Missouri Pacific between McGehee, Ark., and Alexandria, La., includes 15 locomotives, 15 cabooses and 7 offices

The radio telephone handset in each locomotive is within easy reach of the engineman

To aid in the development of train communication, and to determine the practicability of using it in road service, the Missouri Pacific has made an extensive installation of radio and inductive carrier apparatus on a complete subdivision consisting of 193 mi. of single track between McGehee, Ark., and Alexandria, La., the project including apparatus in 15 locomotives, 15 cabooses and 7 wayside stations. The system has been in service for several months, during which the operation of the equipment has proved satisfactory from a communications standpoint. Also, train time is being saved in numerous ways, as is explained later.

The McGehee-Alexandria territory was selected for several reasons for the test and development of train communication. One consideration was that the volume of traffic throughout the year is sufficiently uniform for 15 locomotives to be definitely assigned to through freight service. A second reason was that this territory includes a variety of local conditions: level track with but few curves on 73 mi. between McGehee and Collinston; rolling grades and some curves on 21 mi. between Collinston and Monroe; level straight track on 25 mi. between Monroe and Riverton; and rolling grades and curves on 73 mi. between Riverton and Alexandria. Train movements are authorized by timetable and train orders, with automatic block protection on the 120 mi. between Collinston and Alexandria.

This 193 mi. between McGehee and Alexandria is part of a low-grade route between St. Louis, Mo., and points in Louisiana and Texas. In season about 300 cars of vegetables and citrus fruit from the Rio Grande valley are handled northbound daily from Brownsville, Tex., via Houston, Tex., Alexandria and McGehee to Memphis, Tenn., St. Louis, Mo., and points east and north. Also, this section handles through passenger and freight trains on the route between New Orleans, La., and Little Rock, Ark., with connections through to Kansas City, Mo. Certain engine and train crews are assigned to four red-ball scheduled freight runs in either direction daily between McGehee and Alex-

andria. Crews on other trains work between McGehee and Monroe or between Monroe and Alexandria. A local freight is operated each way daily, except Sunday, and two passenger trains are operated each way daily. The total number of trains daily ranges from 20 to 35 or more.

Two Communication Systems

Two systems of train communication are used. Conventional space radio, with a range of about 5 mi., is utilized for two-way communication between the caboose and locomotive of each train or between trains. Inductive carrier equipment, which operates, in part, on the line wires of the pole line, is used between each caboose and wayside offices at McGehee, Montrose, Collinston, Monroe, Grayson, Georgetown and Alexandria. Both systems operate in the same manner. When a conductor, for example, hears his loud-speaker reproduce a call from his engineer, he takes up his handset marked "Engineer," presses the "push-to-talk" switch and speaks into the transmitter. Then he releases the "push-to-talk" switch and listens for the reply. A separate loud-speaker and handset marked "Station" are provided in each caboose for use with the inductive carrier system when communicating with one of the seven wayside offices. To save words throughout the remainder of this article, the word radio will be used as applying to both systems.

The primary value of distinct systems of communication is to separate caboose-engine calls from caboose-wayside calls, in accordance with the duties of the employees. A conductor is, for the most part, responsible for the operation of a train with respect to matters involving communication with wayside offices, while the engine crew is interested chiefly in caboose-cab calls. Thus in this installation the operation of the loud-speaker in a locomotive is confined primarily to calls for the particular engineman, which requires minimum attention on his part. On the other hand, in a caboose, the conductor and at least one trainman are available to sift the wider range of outside calls on the loudspeakers.

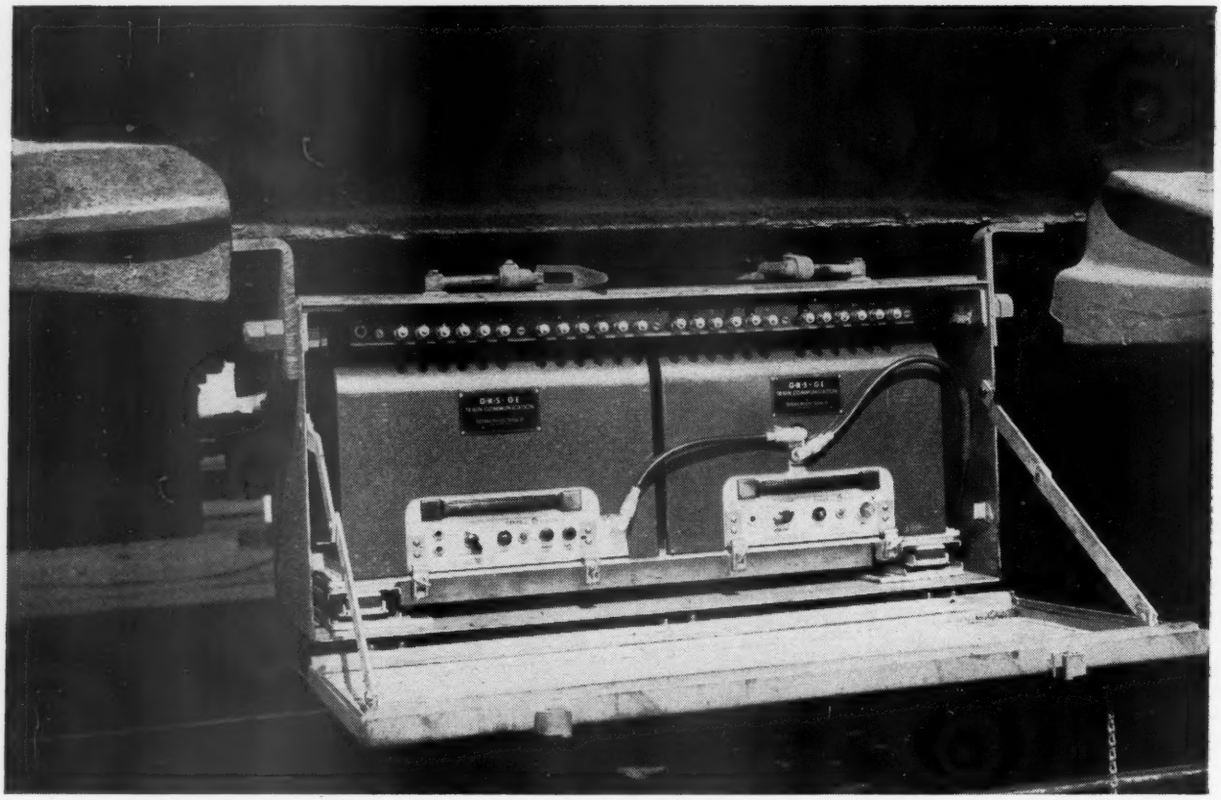
Examples of Benefits

The radio is not used for handling train orders, but, rather, in many ways each day to avoid delays and unnecessary train stops. Also, in cases of hotboxes, break-in-twos or dragging equipment, the train communication saves time which otherwise would be lost.

When brake tests are being made on a train about to depart from a yard, the radio is used between the locomotive and caboose to pass information about air pressure at the caboose and the setting and release of brakes. This saves 10 to 15 min. of terminal time over the previous hand-signal method, when someone usually had to walk half the train length or more to a

Top—In each caboose, the control units, handsets and loud-speakers are convenient to the passageway and cupola

Bottom—Map of the train communication territory



The radio transmitting and receiving sets are mounted in a case under the tender of each locomotive

location where hand signals could be seen from the locomotive. The conductor also uses radio to give the engineman a verbal "highball," in lieu of slower hand signals; to inform the local operator of the exact time of departure; and to tell the engineer when the rear end clears the yard, so that the train can be accelerated promptly.

When taking siding, the conductor uses the radio to tell the engineer the location of the rear of the train with respect to the clearance point on the siding, as for example, "five more cars," "four more cars," etc. When leaving a siding, he radios the location of the caboose with respect to the switch. Finally, when the train is on the main track, and the switch is closed and the rear brakeman is aboard, the conductor gives the engineman a "highball" by radio. Previously, the engineman would drag the train along at a slow speed for some distance beyond the switch to be sure that the rear brakeman would have time to board the caboose. Enginemen and conductors report that the use of the radio saves from four to five minutes when a long train is entering or leaving a siding, a considerable factor when a train must take sidings repeatedly. For example, a conductor, when discussing the benefits of the radio, said his train took siding nine times during a recent run.

Previously there was no way for the engineman to know that the flagman had returned to the caboose when hand signals could not be seen due to curves or bad weather. After calling a "flag" the engineman would wait a considerable time and then start slowly, hoping that the flagman was on. Now, with the radio, the conductor keeps the engineman informed of the approach of the flagman and of his arrival at the caboose, so the train can be started promptly.

When a trainman on a caboose sees a hotbox on a car, the conductor uses the radio to tell the engineman, and, in their conversation, they agree where the train is to be stopped. If a track foreman or other employee signals a conductor of a defect on his train, the conductor tells the engineer to reduce speed to about 5 m.p.h., and to direct the head brakeman to drop off and inspect the train as it passes him. Without radio, the conductor had no alternative but to pull the air and stop his train, which was often undesirable because the train might be pulled in two.

When a defective car must be set out, the radio is used to tell the engineman the position of the car with reference to the switch. This helps in fog or when a train is on a curve. When such unexpected delays occur, the conductor uses the radio to advise the operator in the nearest wayside station, who, in turn, informs the dispatcher.

The radio is also used in determining when the ventilators must be closed on northbound cars of vegetables, which is usually done when the temperature drops below 40 deg. Thermometers are provided on cabooses and at seven stations. By radio, the conductor talks with the operators at these stations, and a decision is made whether to stop the train to close the ventilators or to postpone such action until arriving at Monroe or McGehee where this work can be done without delay to the train. Prior to installation of the radio, the conductor had no means of securing infor-

mation concerning quick changes in temperature at stations ahead, and if he noted a drop in the thermometer on his caboose, he stopped his train to close the ventilators. Thus trains were delayed at places unexpected by the dispatcher, with the result that "meets" which he had planned "went sour."

If a train encounters difficulties, the engineer uses his radio to tell the conductor, who passes word by radio to the nearest wayside operator, who, in turn, advises the dispatcher. For example, if the booster on a locomotive is not working, and the dispatcher is so advised, he may arrange train orders to give the train a "straight shot," without stops, through to its terminal.

An engineer also uses his radio to talk with the conductor concerning moves; for example, to decide where they are to get in the clear for a superior train. Furthermore, the engineer tells the conductor when he is planning to stop for water. Water stations are located at both Clarks and Grayson, 2.9 mi. apart. On one occasion the conductors and enginemen on two southbound trains used the radio to arrive at a conclusion that the leading train should go through Grayson and take water at Clarks, thus allowing the following train to take water at Grayson. This saved at least 15 min. for the second train.

A brakeman on a train on a siding noticed a brake sticking on the eighteenth car ahead of the caboose on a passing train. He used the radio to tell the conductor of the train, who, in turn, told his engineer. The engineer then manipulated the brake pipe pressure to kick the brake off, thus avoiding the necessity for the conductor to stop the train. In this instance the radio saved a train stop and perhaps further delays.

Where Is That Car?

After traveling 25 mi. out of his terminal at McGehee, the conductor of a freight train discovered that he had a car for which he had no bill. He used the radio to contact the operator at McGehee, and was informed that the car belonged in the train. Accordingly, he took the car through to Alexandria, and in the meantime the waybill was located and forwarded. Without the radio, the train would have been stopped, and perhaps the car would have been delayed.

Previously, when arriving at McGehee or Alexandria, a train was required to stop and wait while the head brakeman secured directions from the yardmaster as to which yard track to pull into. Attempts to give this information to trains by messages when passing the last open office were not successful because the yard tracks frequently were not clear in time. With the radio, the information concerning which yard track to enter can be given to the engineer and head brakeman as a train closely approaches the yard. This usually saves several minutes, and in instances has permitted a train in the opposite direction to depart sooner.

Although the ruling grades are light on this subdivision, the rolling grades are a handicap if a train must be stopped at certain locations. When two opposing freight trains are to meet, the crews use their radio to exchange information so that the train which is to hold the main track can "lay back," if necessary, until the other train is in the clear on the siding. Thus the train on the main track can avoid a stop at a location where a start may be difficult.

In those few instances in which a train is stalled, the radio is a time saver in directing moves to cut the train and double. In some such cases, where the crew on another train learns of the trouble, it can cut off its locomotive and aid the train which is stalled. When a train is delayed by being stalled or by a break-in-two, the conductor uses the radio to tell the nearest operator, who passes the word by radio to other trains which may be approaching, so they can be stopped at locations to avoid congestion.

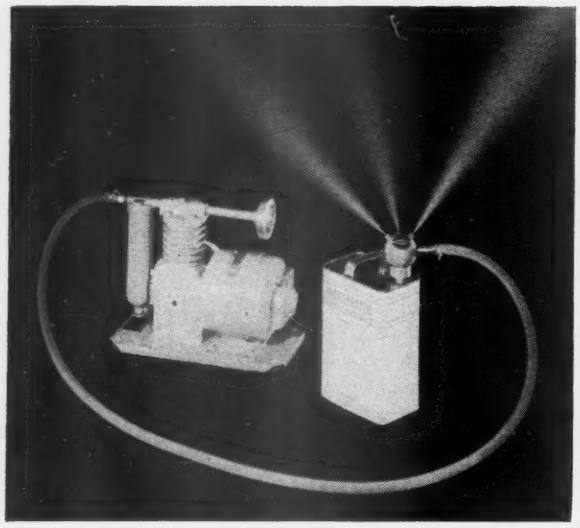
As explained by an assistant superintendent, the radio does not make trains run faster, but it does permit them to save time which otherwise would be lost. Thus the radio is a decided aid in the improvement of on-time train performance. This is especially noticeable with trains on a tight schedule, and a corresponding benefit applies to extra sections of these schedules. Perhaps further experience will prove that train communication will permit shortening some schedules

Communication Equipment

The train communication equipment, of both the space radio and inductive carrier systems, was furnished by the General Railway Signal Company, the strictly electronic apparatus being manufactured for the G.R.S.Co. by the General Electric Company. An explanation of this equipment is included in the March issue of Railway Signaling, and a detailed explanation of the power supply apparatus for the communication equipment on the locomotives and the cabooses will be given in an early issue of the Railway Mechanical Engineer. In brief, the power supply equipment on each caboose includes a 3-kw., 32-volt d.c., belt-connected axle-driven generator made by the Safety Car Heating & Lighting Co. This generator charges a 16-cell, 300-a.h. Exide storage battery that feeds a d.c.-a.c. motor alternator which supplies alternating current for the operation of the communication equipment. On each locomotive a new 110-volt, 500-watt a.c. Pyle-National turbo-alternator was installed to supply the alternating current to the communication apparatus.

The train communication facilities were installed by Missouri Pacific forces. The approximate average cost per locomotive was $1,250, including the radio equipment, turbo-alternator, wiring and installation work. The average cost per caboose was approximately $3,850, including the radio equipment, batteries, motor-alternator, axle-generator, wiring and installation work. The installed cost of each inductive carrier way station was approximately $850. Thus the train communication equipment, including that on 15 locomotives, 15 cabooses and 7 wayside stations, and 2 spares of each type of communication unit, cost about $96,000. The various charges, as applying to future installations, would be more because of increased costs of equipment, materials and wages.

The turbo-alternators on the locomotives and the axle-driven generators and batteries on the cabooses are maintained by electricians in the mechanical department. The radio apparatus on the locomotives, in the cabooses and wayside stations, is maintained by two radio repairmen in the communication department.



The Industrayor being operated by the portable compressor

PASSENGER TRAIN SPRAYER FOR INSECT EXTERMINATION

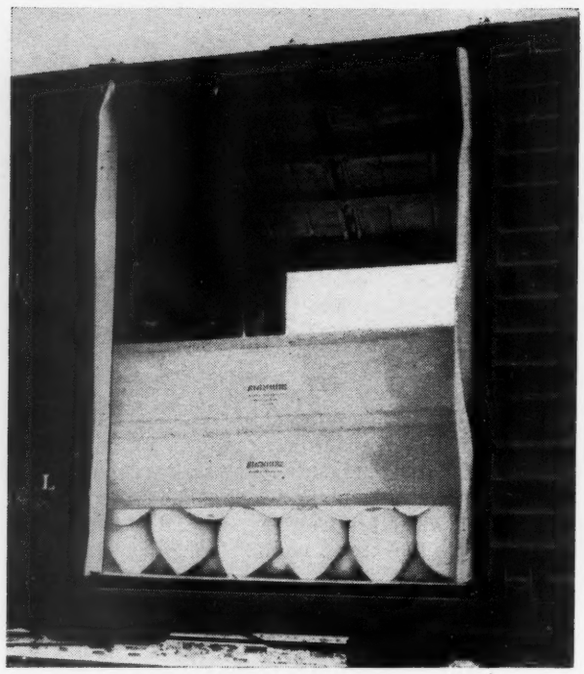
The Industrayor is said to fill a space of 50,000 cu. ft. with insect-killing mist in about five minutes using a few ounces of insecticide. Power can be supplied by an installed air or steam system or by a small portable compressor which is driven by an a.c. motor and is connected with the sprayer by a 15-ft. hose. The compressor weighs 37 lb. and produces up to 60 lb. pressure.

Either of two insecticides, Difuso or Industray, can be used with the Industrayor. Either is said quickly to kill roaches, waterbugs, flies, ants, lice, bedbugs, fleas, moths, etc., and with no waiting for paralyzed bugs to die. Neither insecticide leaves any odor or residue. Difuso has a pyrethrum base, and is recommended for use in kitchens and dining cars. Industray contains lethane and pyrethrum and cannot be used around exposed foods.

The Industrayor is available, either with or without the compressor, from the Tanglefoot Company, Grand Rapids, Mich.

CAR DOOR STRIPS

A car door retaining strip which replaces the conventional-type door barricade and uses no lumber is manufactured by the Signode Steel Strapping Company, 2600 North Western avenue, Chicago. The strips of laminated, heavy-duty water-repellent Kraft liner board, reinforced with ¾-in. by .020-in. Signode steel strapping, are nailed across the door opening inside the car. Depending upon the characteristics and weight of the load, the strips may be butted, overlapped or spaced for maximum efficiency. The average dunnage for a car door will range from 10 to 20 lb. Retaining strips measure 18 in. by 84 in.



Signode car-door retaining strips in place on a box car

The substitution of the smooth-surfaced retaining strips for wood-constructed door bracings is reported to eliminate the need for car doorway liners and damage to cartons, boxes, bales, bags and bundles from snagging and ripping on sharp edges, corners and protruding nails. It is not necessary to knock in a doorway barrier, as unloaders need only snip the steel bands on the retaining strips, thus reducing chances for damage to containers piled near the doorway.

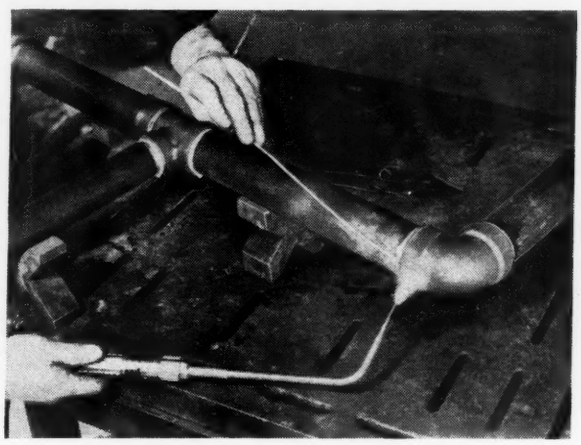
THREADLESS PIPE FITTINGS

Flagg-Flow malleable pipe fittings, the first threadless malleable fittings made for brazed pipe joints, have been introduced by Stanley G. Flagg & Company, Inc., Philadelphia, Pa. In announcing the new development, S. Griswold Flagg, president of the company, said the threadless fitting simplifies any piping layout and makes it possible to join steel or wrought-iron pipe without threads and without welding by a brazing method any competent pipe fitter can use.

The threadless fitting is a black, malleable-iron socket-type fitting for brazing to steel or wrought iron. The cup of this fitting is reamed to accommodate the outside diameter of standard pipe, the end of which has been turned to a true cylinder and clean surface by a die head much like a threading die, and also to produce a shoulder or stop for the pipe when it is interted. Close tolerances in the machining of the cups insure rigid support and a thorough bond.

Silver brazing alloys are recommended for Flagg-Flow joints for industrial installations where temperatures up to 450 deg. F. and pressures up to 300 lb. per sq. in. are anticipated. Silver brazing alloys melt at 1,170 deg. F. or higher; therefore an oxyacetylene torch is used to make joint with these materials. No special equipment is required, and normal silver brazing techniques are employed.

The new fittings are currently made in sizes up to and including two inches. The fittings are applicable wherever 150-lb. standard-weight black malleable, screwed fittings are now used; that is, for 150 lb. working steam pressure at 450 deg. F., or 300 lb. non-shock oil, water, or gas lines at 150 deg. F.



Making a Flagg-Flow threadless joint using a silver brazing alloy and an oxyacetylene torch

The Flagg-Flow, threadless, malleable-iron pipe fittings are made for brazed pipe joints. The cups of the fittings, as shown in the illustration, are reamed to insure a close fit with standard pipe diameters

The brazed threadless fittings permit one-piece piping with its inherent strength and tightness for the smaller pipe sizes where welding is impracticable; they eliminate thread cutting which weakens the pipe structure; they reduce turbulence because the internal diameters of the fittings and pipes are the same; they are said to weigh 30 per cent less than the same size and kind of threaded fittings, and they can be brazed by any competent pipe fitter.

The manufacturer suggests the use of these fittings for hot- and cold-water lines, steam and fuel-oil piping and radiant heating in the domestic field; for meter and instrument lines, boiler feed lines, lubricating-oil piping, gas and air piping, hydraulic systems for not over 300 lb. pressure, and process piping where iron or steel pipe is applicable in industry; in transportation, for air, steam, oil and water systems, within allowable pressure and temperature ranges, especially where vibration and inaccessibility make screwed piping inadvisable.

GAS-TURBINE OPERATING EXPERIENCE

(Continued from page 49)

The future experimental program consists of continuing the cycle testing to gain further operating experience and to design and test controls for particular applications. Tests will be conducted using the heavy Bunker C oils.

Life characteristics of this unit will be determined by actual field application. Testing has progressed to the point where actual life tests must be made. To prove this type of power plant, consideration is being given to some field application where fuel costs are low and 100-per-cent reliability is not immediately essential.

The test results and operating experience have been most encouraging. The unit is easy to start and control, runs smoothly, and is not excessively noisy. Some sacrifice in efficiency has been made to gain reliability by increasing blade clearance. Examination of the heated parts of the unit has not shown any signs of distress. There has been no measurable creep of any stressed high temperature part. Fluorescent penetrant tests have revealed no cracking or heat checking on the parts subjected to rapid temperature variations.

The experience gained from this unit indicates that this type of prime mover can be made practical for power generation using heavy fuel oil or gas. The tests have clearly shown that a simple, open-cycle gas-turbine power plant having a fuel rate of 0.6 lb. per b. hp.-hr. can be built. To obtain higher efficiency, units of larger capacity are necessary, because turbine and compressor efficiencies are affected by clearance areas. Maximum or near maximum component efficiencies occur with blade heights at least twice those used on the present machine. In addition, the cost of a larger unit per horsepower should be substantially less.

GENERAL NEWS

Air Subsidies Seen Justified in Future

Need for new routes, equipment found by House study group

Government subsidies for air transportation have been justified and may still be justified for "limited periods" because of the need for (1) the initial development of new routes; and (2) the introduction of new equipment into service for the advancement of operating speeds, among other goals, ahead of what is immediately practical on an economic basis, according to a report, "Public Aid to Air Transportation," which the House of Representatives has received from its committee on interstate and foreign commerce. The investigation into air subsidies was conducted by the committee as part of the so-called "national transportation inquiry" begun in 1945.

The report sets out calculations designed to show that public aid to air transportation through 1941 amounted to $172,183,531, and that public aid to air transportation through 1946, on the basis of estimates by the Air Transport Association, amounted to $207,268,113.

As for motor carriers, the committee recalled that the former Federal Coordinator of Transportation and the Board of Investigation and Research found no net public aid as a whole, but that certain classes of motor vehicles were, in effect, being subsidized by others, "though such classes in the two reports were not in all instances comparable."

Water Carriers' Gain—With respect to water carriers, the report states that, as of June 30, 1936, $2,138,756,203 had been expended for improvement or maintenance of rivers and harbors in continental United States, together with "substantial amounts" spent for aids to navigation. Expenditure for public owned water terminals by federal, state, municipal and other bodies have exceeded $1 billion, it said, adding that the A.T.A. has estimated that there was net public aid to steamship lines, identifiable between 1936 and 1946, of $282 million.

The committee is of the opinion that the problem of public aid to all forms of transportation must be given "further consideration" in the continuation of the inquiry. In connection with past expenditures, it observes that "they have necessarily taken entirely different forms with respect to each type of transportation" and that "it is difficult to attempt to evaluate the equities or inequities with respect to the various classes of transportation."

"Each past expenditure must be considered on its own merits and within the framework of the needs to be met at the time it was made," the report states. "Public aids assisted the railroads to develop, caused highway transportation to come into being, developed the waterways and put air transportation into effect. . . . Whether the amounts spent in public aid or the manner in which they have been applied have been wise or unwise is of no present concern. What the Congress, the public and the carriers should be interested in is the future development and maintenance of our national transport system in such a manner that it will always be capable of furnishing all the transportation the nation needs, of the quality it needs, at the lowest cost consistent with furnishing such needs. The problem of future public aid to each of the several types of transportation must, therefore, be studied in the light of the needs of our national economy and national security."

For Perpetual Air Aid—According to the committee, the allocation of public funds toward the development of air transportation should be discontinued as the "industry gets under way." At the same time, it observed that there is a "case" for government assistance in two other connections, namely to provide services on social or international grounds, for which, it said, there may be no commercial demand even in the "full maturity" of the industry, and to provide facilities and services such as navigational, meteorological, air-traffic control and search and rescue services.

Subsidization of air transportation was found to have taken the following forms: (1) air mail payments exceeding a so-called service rate; (2) the provision of airways, airport facilities and other navigational facilities; (3) taxation concessions; and (4) the financing of aeronautical research and development. "In so far as any or all of the forms of subsidization are provided at less than a fair and economic rate for the service rendered," it observes, "to that extent must the air transportation industry be regarded as government supported."

Payments to domestic air lines for the transportation of mail totaled, according to the report, $359,816,742, for the period 1930-47. In this connection, however, the committee said that, to a certain degree, it is "exceedingly difficult" if not impossible, to say how much direct subsidy is being granted to domestic air carriers in the amount they receive for carrying the mail.

"Obviously," it continued, "the difference between the amount which the Post Office Department receives from the sale of stamps. . . and the amount which it pays out . . . may not be a test of the existence or amount of a direct subsidy. For, as often happens, the rate of postage to be paid by the public may be fixed without necessary reference to the actual cost of carriage of the mail. If it is thus difficult to ascertain the direct subsidy payments to air carriers, it will be readily seen that it is even more difficult to determine or guess the amount of indirect subsidies received."

Mail-Pay Rationalization—The committee asserts that the separation of compensation and subsidy as distinct elements in mail pay requires "some agreement" as to a definition of a subsidy. "Certainly," it stated, "the amount of postal revenues accruing to the Post Office cannot be accepted as indicative of the upper limit of a non-subsidy rate. Nor can the difference between estimated postal revenues and allocated costs of other postal operations be assumed to measure the rate above which subsidy is provided. Moreover, the rates charged for the carriage of non-mail traffic cannot be assumed to measure the upper limit of a non-subsidy-mail rate, for the other traffic may have different cost characteristics and the other rates may be promotional rates."

The committee said that, if the Civil Aeronautics Board properly discharges its statutory functions, no mail subsidy accrues to the air carriers or their stockholders, but rather to the service or community that fails to provide revenues commensurate with the costs assignable to that service.

With respect to public aid to airports, the committee said that "if it can be accepted that there is, today, no actual element of subsidy, in the generally accepted meaning of the term, in the air mail rates, the same cannot be said for the use by commercial air transport of publicly supplied and supported airports." Earlier, it commented that "much confusion" exists in regard to the use of the word "subsidy" in connection with public aid to air transportation, "chiefly because the average person does not analyze what the term includes."

Outlay for Airports—According to the committee, the total capital expenditures for civil airports through 1945 amounted to an estimated $1,100,000,000. At the

same time, it noted that nearly 45 per cent of the federal-aid funds slated for allocation under the national airport plan for the next three years will be used for construction or improvement of terminal-type airports. The plan, it said, shows 4,835 airports as needing development or further improvements at a total estimated cost of $1,048,500,000, of which $578,800,000 would be provided by others than the federal government. "It is, however," it added, "impossible to say . . . just what proportion of airport expenses are for airline purposes exclusively. It is, however, substantial and in so far as it exceeds air line payments for use of airport facilities is a subsidy."

The report also discloses that the cost of the federal airways system totaled $38,392,483, as of July 1, 1946, and that the annual cost of maintaining and operating the federal aids to air navigation is computed by the Civil Aeronautics Authority to amount to $39,571,087.

"As in the case of airports," the committee states, "it is impossible to say, based on available use data, just how much of the costs of providing airways and aids to navigation could be regarded as a subsidy to commercial air transport. Expenditures by the federal government on the federal airways system without eventual recovery from the users can, however, be justified only if the interests of national defense require the promotion and expansion of civil aviation beyonds its normal economic level."

Two Months Net Income Totaled $37,000,000

Net railway operating income for the same period was $81,071,749

Class I railroads in the first two months of 1948 had an estimated net income, after interest and rentals, of $37,000,000, as compared with $49,000,000 in the corresponding period of 1947, according to the Bureau of Railway Economics of the Association of American Railroads. The two-months' net railway operating income, before interest and rentals, was $81,071,749, as compared with $102,319,791.

Estimated results for February showed a net income of $17,500,000, as compared with $17,200,000 in February, 1947, while the net railway operating income for the 1948 month was $39,425,295, as compared with $43,820,930 in February, 1947. In the 12 months ended with February, the rate of return averaged 3.37 per cent, as compared with 2.69 per cent for the 12 months ended with February, 1947.

Expenses Up 14.6 Per Cent—Gross in the first two months of 1948 amounted to $1,466,625,429, compared with $1,321,870,189 in the same period of 1947, an increase of 11 per cent. Operating expenses amounted to $1,202,211,200, compared with $1,048,652,907, an increase of 14.6 per cent. Thirty-eight Class I roads failed to earn interest and rentals in the two months, of which 16 were in the Eastern district, four in the Southern region and 18 in the Western district.

CLASS I RAILROADS—UNITED STATES

	1948	1947
Month of February		
Total operating revenues	$ 715,890,641	$ 636,240,256
Total operating expenses	586,355,682	509,532,044
Operating ratio—per cent	81.91	80.08
Taxes	77,254,849	69,882,047
Net railway oper. income (before charges)	39,425,295	43,820,930
Net income, after charges (est.)	17,500,000	17,200,000
Two Months Through February		
Total operating revenues	$1,446,625,429	$1,321,870,189
Total operating expenses	1,202,211,200	1,048,652,907
Operating ratio—per cent	81.97	79.33
Taxes	155,910,001	145,013,521
Net railway oper. income (before charges)	81,071,749	102,319,791
Net income, after charges (est.)	37,000,000	49,000,000

Class I roads in the Eastern district in the two months had an estimated net income of $6,000,000, compared with a net income of $12,000,000 in the same preiod of 1947. For February, their estimated net income was $4,700,000, compared with $600,000 in February, 1947.

The same roads in the two months had a net railway operating income of $25,330,408, compared with $35,009,001 in the same period of 1947. Their net railway operating income in February amounted to $13,074,342, compared with $11,664,233 in February, 1947.

Gross in the Eastern district in the two months totaled $672,972,526, an increase of 11.1 per cent compared with the same period of 1947, while operating expenses totaled $569,663,365, an increase of 14.6 per cent.

Class I roads in the Southern region in the two months had an estimated net income of $13,000,000, compared with a net income of $11,000,000 in the same period of 1947. For February, they had an estimated net income of $6,200,000, compared with $4,900,000 in February, 1947.

The same roads in the two months had a net railway operating income of $21,162,835, compared with $19,304,028 in the same period of 1947. Their net railway operating income in February amounted to $10,595,136, compared with $9,231,014 in February, 1947.

Gross in the Southern region in the two months totaled $217,230,869, an increase of 9.5 per cent compared with the same period of 1947, while operating expenses totaled $169,815,777, an increase of 10.3 per cent.

In the West—Class I roads in the Western district in the two months had an estimated net income of $18,000,000, compared with $26,000,000 in the same period of 1947. For February, they had an estimated net income of $6,600,000, compared with a net income of $11,700,000 in February, 1947.

The same roads in the two months had a net railway operating income of $35,578,506, compared with $48,006,762 in the same period of 1947. Their net railway operating income in February amounted to $15,755,817, compared with $22,925,683 in February, 1947.

Gross in the Western district in the two months totaled $576,422,034, an increase of 11.3 per cent compared with the same period of 1947, while operating expenses totaled $462,732,058, an increase of 16.4 per cent.

N. & W. Better Service Meetings Resumed

Responsibilities of individual employee stressed at meeting

Individual-employee responsibility for good public relations, improved service and more efficient operations were stressed in discussions at the Norfolk & Western's Better Service Conference which was held at the Hotel Roanoke, Roanoke, Va., on April 2 and 3. The conference, the first since 1941, was the twenty-third such meeting of delegates representing the Better Service Clubs located throughout the N.&W. system; the general chairman was L. C. Gardner, general claim agent of the N.&W., and approximately 600 delegates and guests were in attendance.

Speakers were E. G. Plowman, vice-president, traffic, United States Steel Corporation; C. I. Cheyney, president, Bailey Lumber Company, Bluefield, W. Va.; and the following N.&W. executives: R. H. Smith, president; C. H. Tabor, vice-president and general manager; Sydney F. Small, vice-president—assistant to president; George Dunglinson, Jr., vice-president in charge of traffic. Other proceedings included the preparation by committees and adoption by the conference of reports on Safety; Courtesy and Attentive Service; Delivery of Freight on Time and in Good Condition; You Know Your Railroad and Its Problems; and Citizenship.

Physical Improvements—With General Chairman Gardner presiding, the opening session on April 2 got under way with the address of President Smith, who referred briefly to the strike of bituminous coal miners, expressing his hope that something could be worked out to prevent such "disastrous and unpredictable" interruptions. Mr. Smith went on to say that he thought the nation was making "some progress" in getting its economy back to a "normal peacetime basis," and he was "hopeful that unsettled conditions in the world will not again soon divert us from our peaceful path."

As for the N.&W., its president said that the road still faces heavy demands. particularly for freight service. He proceeded to list a few of the things it has been doing to equip itself for the handling of its traffic. The list included the new merchandise pier at Norfolk, Va., constructed at a cost of $6,000,000; the $12,000,000 project under way at Coaldale, W. Va., where more than five miles of line are being relocated and a new double-track tunnel, 1½ miles in length, is being driven under Elkhorn mountain; signaling improvements on the Bristol and Cincinnati lines and on the line between Lynchburg, Va., and Radford; and a major line improvement on the Cincinnati line.

Meanwhile, as Mr. Smith put it, the N.&W. shops at Roanoke "are now busy building 3,000 new coal cars and some additional new, large, and modern steam locomotives, at a total cost of approximately $17 million." This equipment is expected to be completed by the end of next year. While the N.&W. has been "considerably disappointed" in the delivery dates it has been able to get on new passenger equipment, Mr. Smith assured the delegates that their road had enough new passenger equipment ordered and enough modernization work in progress to "give our railroad passenger train equipment that will be as good as that of any railroad in the country."

Employees' Opportunity—The N. & W. president outlined these improvement and modernization programs, he said, so the employees would know that the management "is not hanging back in its effort to equip the road to meet the service demands which may be made upon it." The balance of the job, he continued, "is going to be very largely in the hands of you people who handle that equipment and who actually render the service to the public."

Mr. Smith went on to compare N. & W. performance in 1947 with that of 1941; and he found last year substantially better as measured by such standards as ton-miles per train-hour and average car miles per car-day. On the other hand, the 1947 showing was worse than 1941 in such phases of operation as the use of coal in freight service; freight loss and damage costs; and employee injuries. Mr. Smith suggested that the conference might give serious consideration to these matters. With respect to employee injuries, he reminded the delegates of the N. & W.'s "golden age"—the 1938-1943 period in four of which years the road was awarded either the Harriman medal or the National Safety Council's first award.

As to freight loss and damage payments, Mr. Smith said the problem there was not only a matter of reducing claim costs, but it was a matter of satisfying patrons. He added that "a damage claim, no matter how promptly and pleasantly paid, is a mightly poor substitute for good transportation service." Later in the meeting there was a showing of "Easy Does It," the motion picture produced by the Freight Claim Division of the Association of American railroads, to demonstrate how loss and damage can be prevented by proper switching of cars.

Courtesy First—Meanwhile, Mr. Smith had concluded his address with a plea for courtesy on the part of N. & W. employees. "Let me remind you," he said, "that the most important qualification for an employee of a public service corporation is the habit of courtesy—the habit of old-fashioned good manners. Good manners is not just a routine conventional way of doing things. It is fundamentally a frank, honest, friendly and considerate way of dealing with patrons and fellow workers."

Vice-President and General Manager Tabor also referred to the improvement and modernization programs which had been discussed by Mr. Smith. He called the N. & W.'s "modern steam engines" the "best in the United States," and said its passenger and freight cars "are as good as any now in use." The N. & W.'s performance during and since the the war was due to management's foresight in providing modern equipment and facilities as well as to the "excellent job done by the organization as a whole," Mr. Tabor also said. At the same time he advised the delegates that "our service is far from perfect."

"During the war," he continued, "we necessarily were forced into some expensive methods of operation. The war is now over and we should get back to normal. I am certain that we can improve our operation by improving the spirit of our organization." In the latter connection, Mr. Tabor stated earlier in his address that a "great deal of good" came from the Better Service conferences which gave the employees an opportunity to get better acquainted with each other and to study together ways and means of solving their road's problems. He also joined in Mr. Smith's call for the formation of habits of safety and courtesy.

The Public's Attitude—President Cheyney of the Bailey Lumber Company delivered his address at the April 2 luncheon session which was presided over by Toastmaster J. P. Jackson, general superintendent of the N. & W.'s Eastern General Division. Calling his talk "The Public and What It Thinks of Railroads," Mr. Cheyney said it was based on conversations he had with people in all walks of life as he traveled about the country.

He has found that the railroads came out of World War II occupying " a high place in public opinion," and that they are "right now in a better position to get some of the things they want" than has been the case for some time. This position, Mr. Cheyney advised, can be maintained by "good, curteous service—not by propaganda." The public, he continued, has decided that the railroads are the "dependable" agency of transportation; that they are "well managed"; that rates are generally reasonable; and that railroad labor relations are "among the best."

When he has brought up the question of subsidies to railroad competitors, Mr. Cheyney has found most persons ready to concede that such subsidies are unfair; but he does not think the issue is one that the public generally thinks much about. Meanwhile, he has found no unfavorable public reaction against the railroads because of the pending anti-trust complaints.

After setting out these favorable factors, Mr. Cheyney warned that the public attitude changes quickly. He went on to say employees as well as management have an obligation to prevent interruptions of service. He then listed a few things about railroad service which the public doesn't like. The list included the construction of freight tariffs and arrangements for sales of passenger tickets, both of which Mr. Cheyney called "too complicated." Summing up, he said that most of the complaints are about passenger service; and that it is a "fair statement" that the public is "pretty well convinced that the railroads are without an equal when it comes to handling freight economically, dependably and safely."

Bedrock Public Relations—Vice-President Plowman of the United States Steel Corporation spoke at the April 2 dinner session where O. M. Dawson, general superintendent of the N. & W.'s Western General Division, served as toastmaster. Mr. Plowman advised the delegates that the factors underlying better service, from the standpoint of the railroad employee, are: Effective coordination; responsible inspection; and the handling by every employee of his share of the public-relations problem.

By coordination, Mr. Plowman meant the ability of the individual to understand himself and to get along with others. Inspection, he called the necessary "measuring process" to establish what the facts are and to indicate what further improvements are available and possible; the term, as he used it, "does not imply discipline or doubt" as to the ability of human beings to work together "without some kind of discipline or punishment." It was the third factor —individual responsibility for public relations—that Mr. Plowman singled out as one of the keystones of better service, the proposition that each employee must do his own public relations work.

"By this," Mr. Plowman also said, "is meant that every employee down to, and very particularly the nameless so-called laborer who sweeps out the station at 2 o'clock in the morning, is directly and personally responsible for his important share in creating attitudes commonly called public relations. These public attitudes have a great deal to do with better service. If the shippers and the general public like the Norfolk & Western they will be sympathetic and

will cooperate, thus automatically bringing about better service. If, on the other hand, there develops a feeling of annoyance, a sense of unreasonable delay, or accidents, a reputation for lack of aggressiveness, this public attitude itself will make the task of rendering better service more difficult."

N. & W. Vice-Presidents Small and Dunglinson delivered their addresses at the closing session on April 3, when W. Jenks, chairman of the N. & W. board also spoke, making brief informal remarks in which he extended his greetings to the delegates and expressed his pride "in the men who constitute the Norfolk & Western organization." Mr. Small stressed the competitive nature of the transportation business, and warned that all N. & W. employees must remain on the alert to see that their road holds its own. He called the railroads' wartime performance "remarkable," but pointed out that it is "over the dam." and he went on to suggest that the industry won't make progress by "resting on historical laurels."

As Mr. Smith appraised the situation, the public is going to demand of the railroads a peacetime performance comparable with their wartime achievements. Like the other speakers, he went on to stress the importance of good public relations which will "convince the public that we have the right attitude and proper disposition to deal with those who pay the freight and those who furnish the capital."

Mr. Dunglinson pointed up the messages carried in speeches of those who preceded him on the program and went on to explain briefly the organization and work of the N. & W. Traffic Department. He also referred to the committee reports which he called "textbooks to guide the way to better service."

"Every officer and employee," Mr. Dunglinson continued, "plays a part in the volume of business a railroad maintains. Satisfied customers stay with us; dissatisfied customers go elsewhere when they can. Good public relations is determined, not by management, but by the manner in which each employee studies his job and performs it."

Retirement Board Report —Correction

Inaccurate figures appeared in the article in *Railway Age* of March 27, page 49, summarizing the 1947 annual report of the Railroad Retirement Board. The annual railroad payroll mentioned in the last paragraph of the article should have been $3,500,000,000. The statement in the next-to-last paragraph that the difference between the total expenditures and the benefit expenditures was for administrative purposes is erroneous. Administrative expenditures—which in fiscal 1947 amounted to $4,561,181—are charged to a separate account, derived from the 10 per cent of contributions set aside for that purpose. The difference between the total expenditures from the Unemployment Insurance Account and the benefit expenditures ($2,617,929 in 1947) was made up of state tax refunds and reimbursements to states.

Eastern Roads Plan Another Passenger Fare Increase

Declaring that sharp cost increases in wages, materials and supplies have caused unprecedented passenger service losses, the eastern railroads applied to the Interstate Commerce Commission this week for authority to increase passenger fares approximately one-half cent a mile. The proposed new scale is 3 cents a mile for one-way coach fares now 2½ cents on virtually all eastern roads, and 4 cents a mile for one-way Pullman fares, presently 3½ cents on all eastern roads. Proportionate increases are proposed for round-trip and multiple ride fares. Commutation rates would not be affected.

"On an annual basis petitioners' operating costs have been increased by at least $400,000,000 since the present fares were authorized by the commission in the spring of 1947," the railroads informed the commission. Last year's passenger service operations of the petitioners resulted in the greatest deficit in passenger net railway operating income they have ever experienced, the petition said. Detailing their cost increases, the roads pointed to wage increases effective last September 1 for non-operating employees and November 1 for operating employees and declared that on the basis of 1947 operations these would raise their operating costs by about $273,000,000 annually, aside from additional payroll taxes of $16,900,000 yearly on the wage increases.

Gas Turbines Designed for Mobile Power Plants

A compact, easily moved, source of emergency electric power may be made available within the next few years by mobile gas-turbine plants now under development by Allis-Chalmers engineers.

Studies have been made of 3,000- and 6,000-kw. units to be mounted on railway trucks for rapid movement on railway track. The proposed units could operate as a sole source of power or could be synchronized with an existing power system.

Simplicity, smooth operation and no requirement for water would characterize the gas-turbine plants. Operating on oil, the units would require only fuel line connections to tank cars or storage tanks, in addition to the electric transmission line connection.

The prime mover of the 3,000-kw. unit is designed to operate on the simple gas-turbine cycle with a regenerator. The manufacturer states that with an inlet temperature of 1,300 deg. F., the unit would have a fuel-bus efficiency of about 23 per cent at full load. Mounted on eight carrying axles arranged in four standard freight car trucks, the power plant would weigh approximately 230,000 lb. Sufficient oil-tank space can be built into the unit to permit full load operation for at least six hours.

The turbine unit is to be coupled to a 3,600-r.p.m. generator through a reduction gear. All working air for the gas turbine plant and cooling air for the generator is to be taken in through filters in the side walls of the cab. All electrical equipment and synchronizing apparatus are to be built into the cab.

The design of the more powerful 6,000-kw., 3,600-r.p.m. unit is identical to the smaller power plant, except that the inlet temperature is 1,150 deg. F., and a gear will not be necessary. Efficiency is estimated to be approximately 21 per cent. Total weight would be about 500,000 lb. with tanks loaded for eight hours operation and the unit ready for service. If a higher efficiency unit with limited life is desirable, the larger gas turbine could be built for 1,300 deg. F. gas inlet temperature, in which case the estimated efficiency would be 23 per cent and the generator output 7,500 kw.

Standard draft gear and air brakes would permit these power plants to be moved in freight trains. The regenerator and the air exhaust stacks for generator and regenerator would have to be removed for standard clearance.

U. S. Chamber Favors Jobless-Tax Reduction

The Chamber of Commerce of the United States has written to the House committee on ways and means a letter urging enactment of H.R.5711, the bill introduced by Representative Simpson, Republican of Pennsylvania, to amend the Railroad Unemployment Insurance Act by placing the taxes collected thereunder on a sliding-scale basis which would immediately reduce the levy (paid entirely by the railroads) from 3 per cent to ½ per cent of taxable payroll. The committee's recent hearings on the bill were reported in the *Railway Age* of March 27, page 59.

Hears More Opposition To Transport Department

A subcommittee of the Senate committee on interstate and foreign commerce has adjourned, subject to further call, hearings on S.1812, which proposes to establish a federal Department of Transportation under a secretary of transportation. The railroads' objections to the bill, sponsored by Senator Capehart, Republican of Indiana, were set out in *Railway Age* of March 27, page 56. Approval of the measure has been advocated only by Colonel J. Monroe Johnson, director of the Office of Defense Transportation, and a member of the Interstate Commerce Commission, whose views were reported in *Railway Age* of March 13, page 89.

Senator Capehart, meanwhile, has indicated that he may invite Secretary of Commerce Harriman, former chairman of the board of the Union Pacific, to give his views. In this connection, the subcommittee chairman inserted into the record of the proceedings an article written by Mr. Harriman in 1935 and interpreted by Mr. Capehart as advocating consolidation of the federal transportation agencies into a Department of Transportation. At the same time, the senator noted that Under Secretary of Commerce W. C. Foster, in recent testimony before the subcommittee, held that enactment of S.1812 at the present time would be "premature," despite the fact that the need for a rationalization of transportation policy and the reorganization of transportation agencies and responsibilities has "long been recognized."

Further opposition to the proposed legislation was expressed March 24, at which time testimony was received from Colonel A. B. Barber, manager of the Transportation and Communication Department, Chamber of Commerce of the United States; J. V. Lawrence, managing director of the American Trucking Associations; C. C. Thompson, president of American Waterways Operators; and A. U. Krebs, counsel of the National Federation of American Shipping.

According to Colonel Barber, the C. of C. is opposed to any proposal which would impair the status of the federal transportation regulatory agencies as arms of Congress and place them to any degree under control of the executive branch. He told the Senate group that the chamber's Transportation and Communications Department Committee recently adopted a resolution in which it declared that it would be a "mistake" to subject the regulatory commissions to "domination or even to controlling influence of the executive branch through establishment of a Department of Transportation, which, because of recurring elections, is always subject to sudden and sweeping changes of policy." The committee also resolved, he said, that the institution of such a cabinet office would "greatly increase the impact of party political considerations upon transportation problems, which should be removed from those influences as far as possible."

The C. of C. believes, Colonel Barber continued, that "ultimately" it will be beneficial to consolidate in a single agency the regulation of all forms of transportation. At the same time, however, he suggested that any necessary coordination of regulatory policies, as affecting relationships among the different forms of transportation, can better be determined by Congress itself than by a Department of Transportation.

Mr. Lawrence's objections to the bill were centered mainly around his contention that it would bring about a "lack of continuity" in the policy governing regulation of carriers. After describing some of the "difficulties" which he said the motor carrier industry has experienced under government regulation, he nevertheless conceded that "at least the policy [of the I.C.C.] has been a continued trend in one direction or the other rather than something that could change almost overnight every few years."

Developing this line of argument, Mr. Lawrence observed that the terms of members of the commission have averaged nine years and 11 months since the commission was founded, whereas the average for cabinet members in approximately the same period has been three years and eight months. "Thus," he said, "it will be seen that we might very well expect a change of policies with every change in administration, which occurs often enough. But the shorter life of a cabinet officer in point of average term of service would present even more difficulty."

Mr. Krebs said the bill was "premature" and ahead of its time. "All forms of transportation are still recovering from the effects of World War II," he continued. "We think that the problems experienced during this recovery period can best be solved by independent agencies which are familiar with the needs of the particular forms of transportation. Until these postwar problems are solved, we believe that it would be most unwise to attempt to put into effect such a plan as is proposed by this bill."

According to Mr. Thompson, the provisions of S.1812 would create a "super agency" within the already "complex structure" of the federal government. The domestic water carrier industry, he said, "sincerely believes" there should be "less government—not more," as he suggested would be the case if S.1812 or similar legislation became law.

"The provisions of the bill do not provide for the elimination of a single activity or a single regulation of the several existing agencies," he declared. "It is reasonable to assume that if a department of transportation were created . . . it would issue countless regulations and directives to the complete confusion of an already confused transportation industry."

Mr. Thompson also asserted that the regulation of transportation and the fixation of policies regarding it would not be in "competent hands" if placed under a secretary of transportation. "It could well be that an individual with extreme prejudices towards or against a certain type of transportation would, or could be appointed secretary, under secretary, or assistant secretary of transportation," he said, adding that "such action would not be healthy for any type of transportation and would be definitely repugnant to the public interest."

Holdout Ops Reject Emergency Board Award

The general chairmen of the Brotherhood of Locomotive Engineers, the Brotherhood of Locomotive Firemen & Enginemen and the Switchmen's Union of North America, meeting in Cleveland, Ohio, on April 6, recommended

CONSTRUCT ADDITIONAL ASSEMBLY LINE FOR PRODUCTION OF P-S-1 FREIGHT CARS—Supplementing two assembly lines turning out P-S-1 "package" box cars at its Michigan City (Ind.) plant, the Pullman-Standard Car Manufacturing Company recently opened a third line at its plant in Bessemer, Ala. The new line includes an automatic submerged arc welding machine and jig for the manufacture of welded sides for the P-S-1. This equipment, as shown above, accurately positions sheets, posts, sills and other parts, and welds them into a single unit.

to their chiefs that they "inform the Carriers' Conference Committee that the report of the President's emergency board dated March 27, 1948, is not acceptable." The statement issued by the brotherhoods added that the wage and rules committees of the three organizations are willing to meet with the railroads' committee at an early date in an attempt to negotiate the recommendations of the board into a form that will be acceptable to them. (The emergency board recommended a wage increase of 15½ cents an hour and adoption of a number of rules changes favorable to the employees; see last week's *Railway Age*, page 47).

The general chairmen further recommended that the negotiations, if undertaken, not be carried on beyond April 27, but that a strike date be set "as soon thereafter as possible" if no acceptable settlement is reached by that date. April 27 is the end of the thirty-day "cooling off" period prescribed by the Railway Labor Act, which began with the submission of the emergency board's findings on March 27.

The carriers have advised the brotherhoods of their willingness to meet with them at Chicago on April 14 to conduct further negotiations.

N. Y. C. Closes All Heavy Repair Shops

The New York Central this week closed all its heavy repair shops for locomotives and cars, thus increasing by 7,363 the number of employees furloughed as a direct result of the coal strike. The number of employees laid off by the system since the coal strike began now exceeds 10,000.

Further Cut in RR Service Depends on Miners' Action

Further reductions in passenger and freight coal-burning locomotive mileage are imminent, Director J. Monroe Johnson of the Office of Defense Transportation said on April 7, at which time the coal miners had not indicated any inclination to resume work. He warned that these reductions would be seriously felt throughout the nation and would call for the utmost exertion on the part of motor, water and air transportation. The railroads on April 5, Colonel Johnson said, had a 22.4 days' supply of coal. This, he added, will be reduced to 20 days early next week, necessitating at that time a further reduction of an additional 25 per cent in passenger and freight coal-burning locomotive mileage.

The rate of burn and small additional supplies indicate that further cuts cannot be postponed longer than the first part of next week, he said. He added that he was therefore taking occasion to warn the motor, water and air carriers and the shippers and receivers of freight of these imminent cuts, since they would result in mass diversions from the railroads to other modes of transportation, threating the displacement of movements of essential commodities.

J. T. Scott, Jr., Becomes Member of National Mediation Board

John Thad Scott, Jr., of Houston, Tex., recently took his oath of office as a member of the National Mediation Board, thus bringing to the board its complement of three members for the first time since June, 1946, when George A. Cook resigned. The appointment of Mr. Scott, whom President Truman named last month as Mr. Cook's successor for a term expiring February 1, 1951, was confirmed unanimously by the Senate on March 2 after having remained on that body's calendar since February 24, when it was reported favorably from the committee on labor and public welfare.

Mr. Scott, who is 53 years old, is a native of Houston, Tex., and holds B.A. and L.L.B. degrees from the University of Texas. A veteran of World War I, he served as an Army captain in France. Following his return to this country, he opened a law office in Houston in 1920. During World War II, Mr. Scott served as chief counsel of the War Labor Board's eighth region at Dallas and also as counsel for the National Wage Stabilization Board. He has also served as referee in cases before the National Railroad Adjustment Board.

Arizona Intrastate Rates

The Interstate Commerce Commission has found that "unjust discrimination against interstate commerce" is caused by the refusal of the Arizona Corporation Commission to authorize railroads operating in that state to apply the Ex Parte 162 and Ex Parte 166 freight-rate increases to intrastate rates on ore and concentrates, livestock, and limerock. At the same time the commission found that no discrimination results from the Arizona commission's failure to approve the increases for application to intrastate rates on raw products of agriculture and sulphuric acid.

The proceeding in which the present report has come, No. 29729, was instituted upon petition of the interested railroads after the Arizona commission's general approval of the Ex Parte 162 increases had excepted the foregoing commodities. The commission found that the increases should now include also the Ex Parte 166 adjustment, because "to ignore our action in Ex Parte No. 166 would continue the disparity in the Arizona intrastate rates and disregard the respondents' further revenue needs which became apparent after the testimony in the instant proceeding had been presented."

No order accompanied the report, which said, however, that one would be entered "unless the Arizona commission notifies us within 30 days from the service of this report that it will permit promptly the increases herein required." Chairman Lee and Commissioner Splawn filed a dissenting opinion, while Commissioner Patterson did not participate in the disposition of the case.

Seven Roads Fined $1,000 Each

The Interstate Commerce Commission has been advised that judgment in the amount of $1,000 plus costs was entered recently in the federal court at Minneapolis, Minn., against each of seven railroads charged with failing to observe the provisions of Second Revised Service Order No. 244. The order pertains to furnishing cars to shippers for loading grain at Minneapolis.

According to the Commission's notice, the carriers, by stipulation, admitted certain allegations of the complaints. The railroads against which the judgments were entered included the Minnesota Transfer; Minneapolis & St. Louis; Great Northern; Minneapolis, St. Paul & Sault Ste. Marie; Chicago, Milwaukee, St. Paul & Pacific; Chicago Great Western and the Chicago, St. Paul, Minneapolis & Omaha.

American University Plans Foreign Transport Institute

The American University, Washington, D. C., will conduct its Second Annual Foreign Transportation Institute from April 27 to May 26 under the direction of Dr. L. M. Homberger, professor of transportation at the university. Cooperating on arrangements for the institute are the Association of American Railroads, Air Transport Association of America, National Federation of American Shipping, and the United States Maritime Commission.

"The curriculum," the announcement said, "is planned to give junior executives a broad knowledge of the present and future problems of worldwide transportation and trade and to widen their understanding by presenting a coordinated picture of the functions of the government and private agencies engaged in these fields. It is designed particularly for employees, and those desiring to become employees, of government transportation agencies, of inland carriers interested in foreign transportation, of ocean carriers, and of enterprises engaged in foreign trade."

The tuition will be $120, and applications for admission should be directed to Dr. Homberger, the American University, 1901 F street, N. W., Washington 6, D. C. The last registration day will be April 21.

Southern Booklet Describes New Freight Schedules for Shippers

A system-wide revision and speed-up of through freight train schedules on the Southern, made effective during recent months, has now been brought "up-to-the-minute" for the railroad's shippers

and receivers with the issuance of a compact freight schedule booklet. The pocket-size booklet contains a condensed map, a ready-reference index and 18 simplified tables showing schedules of through freight trains arriving and departing from principal cities through the system. In many instances the schedules have been revised to provide for early-afternoon arrivals, and the road's freight traffic officers point out that this often means as much as 24 hours' earlier delivery.

The improved schedules have been going into effect as new Diesel-electric equipment is received. Additional improvements will be made when new Diesel road units, now on order, are delivered, thus giving the Southern a total of 425 such units. Freight runs between St. Louis, Mo., and New Orleans, La., and points in Georgia, the Carolinas, Florida and Alabama have been cut by seven or more hours; between the Potomac yards at Alexandria, Va., and Atlanta, Ga., by three to eight hours; and between New Orleans and the Potomac yards by over six hours.

Railroad Day at Chicago Rotary; Siddall Describes Passenger Service

Railroad posters, dining car menus, favorite railroad songs and recorded sounds of trains were among the features of "Railroad Day" luncheon of the Chicago Rotary Club on March 30. H. W. Siddall, chairman of the Trans-continental Passenger Association, presented an address entitled "The Iron Horse — Its Past, Its Present, and Its Future." D. W. McMaster, acting manager of the Chicago Railroad Fair, described briefly the latest developments in that enterprise. Norman Ross, who directs a daily musical radio broadcast for the Chicago & North Western, was toastmaster.

At the outset Mr. Siddall described the railroads as an unsubsidized industry. With respect to the impression among some "that if it were not for the land grants there would be no railroads," the speaker pointed out that only five per cent of existing railroad mileage is land grant mileage and that reduced rates to the government since the land grants "have directly or indirectly affected the revenues of practically every railroad in the country." On the other hand, he said, "the subsidies now being paid or being talked about in connection with other forms of transportation today will affect practically 100 per cent of the mileage of the transportation companies involved, without any strings attached to the subsidies adversely affecting their transportation revenues."

The speaker devoted the major portion of his address to a description of modern passenger equipment, which he characterized as different from that of former days as day is from night. Of the Rail Traffic Credit Agency, the speaker said that 8,000 credit cards were issued during the first year of operation and that the holders of the cards are currently using them to buy about a million dollars worth of transportation each month.

Mr. Siddall stated the belief that there is sufficient potential passenger traffic to permit all forms of transportation agencies to perform at a profit.

New Diesel Repair Shop for Monon

A new Diesel repair shop designed to accommodate both servicing and heavy repair operations on locomotives comprising about 80 per cent of the road's motive power was dedicated with appropriate ceremonies by the Chicago, Indianapolis & Louisville at Lafayette, Ind., on March 23. The new shop, built at a cost of about $200,000, occupies a space of 170 ft. long by 65 ft. wide in the west end of the Lafayette locomotive shop.

F. E. Cheshire, operating vice-president, Monon, who presided at the public christening of the new Diesel shop at Lafayette, Ind., on March 23

R.E.A. Claims Cut

The Railway Express Agency recently reported a downward trend in the number of claims filed against it. This decline began in August of last year and in December had fallen 22 per cent from those filed in the previous December. In January and February, 1948, the reductions of claims filed were respectively 25 and 23½ per cent from the corresponding months of 1947.

Bill to Void Liability Release on Free Passes

Senator Hill, Democrat of Alabama, has introduced S.2402, a bill to amend section 1(7) of the Interstate Commerce Act by adding provisions to make the liability of a railroad for injuries, death or property damage sustained by persons traveling on free passes the same as its liability to passengers carried for hire—"notwithstanding the terms of any stipulation or contract which seek to limit the liability." Introduction of the bill followed the recent decision wherein the Unitd States Supreme Court affirmed its prior determinations to the effect that the Hepburn-act provisions of the I.C. act brought all matters relating to passes under federal regulation and thus barred recovery under state laws for injury or death of a person traveling on a pass (see *Railway Age* of March 27, page 71).

Nickel Plate Fined $1,000

The Interstate Commerce Commission has been advised that judgment in the amount of $1,000 and costs was entered against the New York, Chicago & St. Louis in the Federal district court at Cleveland, Ohio, on March 15. According to the commission's notice, the carrier allegedly violated a commission service order requiring the prompt handling of refrigerator cars after being unloaded at Cleveland.

Provinces Protest Canadian Freight Rate Increase

It is understood that the Canadian Board of Transport Commissioners' recent decision to award a freight rate increase of 21 per cent to the Canadian railways (reported in *Railway Age* of April 3, page 58) is being appealed by the Maritime Board of Trade, representing the provinces of Nova Scotia, New Brunswick and Prince Edward Island, and also by the prairie provinces in Western Canada—Manitoba, Saskatchewan and Alberta—which waged a bitter battle against the increase during the 150 days of public hearings. The western provincial governments were represented by counsel, as also were the Maritime Province governments, but Ontario and Quebec did not oppose the railways.

It is not yet decided to what body the appeal will be made. On previous occasions the appeal on questions of fact was made to the Canadian Cabinet and on questions of law to the Supreme Court of Canada. There are questions of law involved, as certain rates, notably those provided by the Crow's Nest Pass Agreement, are statutory, enacted by Parliament. Meantime, unless otherwise ordered by the Cabinet, the new rates will be operative pending the result of the appeal.

Western and Maritime resentment at the rate increase boiled over in the House of Commons this week when members from both areas broke from party lines to voice angry criticism of the decision, demanded immediate Cabinet "action" and talked darkly of nationalizing railway competition and of a Quebec and Ontario "compact with the freight lines."

Transport Minister Chevrier replied for the Administration and he said that most of the criticism dealt with the rate structure and not the increase which

the transport board had authorized.

He explained that the Administration took the view that the rate case was still in the "pending stage" because of the appeals made, or about to be made. At this stage, he didn't "want to enter into the discussion." He wouldn't "want to prejudice." He wouldn't say whether application of the 21-per-cent increase would be deferred pending the appeals, though this would receive "careful consideration." He promised that the appeals themselves would receive "due consideration."

The Canadian Freight Association has been granted special permission by the Interstate Commerce Commission to publish, on three days' notice, tariffs providing for increases in freight rates applying between points in the United States and Canada that had not been increased under the commission's orders in Ex Parte 162 and Ex Parte 166. The increase will be 21 per cent.

N.I.T. League Opposes Justice Department's Overcharge Claims

The National Industrial Traffic League has asked the Interstate Commerce Commission for permission to intervene in opposition to 10 of the numerous complaint proceedings wherein the federal government is seeking recovery of alleged overcharges made by the railroads on the wartime shipments of various commodities. The commission, which last month permitted the Topeka, Kans., Chamber of Commerce and the Topeka Traffic Association to intervene in the proceedings, also has received intervention petitions from the New England Traffic League, California Farm Bureau Federation and the National League of Wholesale Fresh Fruit and Vegetable Distributors. Meanwhile a scheduled April 26 hearing on five of the complaints has been postponed at the request of the Department of Justice "to a date to be hereafter fixed."

Declaring that the reparations sought would amount to approximately $2 billion, plus interest, the N.I.T. League said that, if the defendant carriers are required to make large payments of reparation or suffer reductions in income through resettlement of the freight charges on war movements of government materials, the results are likely to "lay a heavy burden" on the whole body of shippers using the railroads.

"The league," it said, "does not need to suggest that the shippers are to be regarded as the parties ultimately to be affected by the outcome of these cases; but realistically a billion dollars of refunds or hundreds of millions of dollars of reparation could not be paid by the railroads — if awarded by the commission and upon judgments of courts to enforce such awards — without such great depletion in the funds and reserves of the American railroads as would have to be made up somewhere. Economies in future operating expenses . . . hardly could contribute sufficiently to meet such awards; and self-evidently the result would be a level of freight rates to be borne by the public generally and sustained by the national economy higher than will be applicable or required if such enormous reparation payments are not encountered."

According to the league, the railroads provided the "best and most expeditious service" for the government on war materials during the war and rendered "preferred services" without "much regard" to costs or other considerations. The government, it said, avoided losses, guaranties and burdens such as were borne during World War I and in the period of federal control from 1918 to 1920. At the same time, it said, the net incomes of the railroads, including government traffic, "presumably entered" into excess profits and income taxes paid to the government during the war years.

Replying to the N.I.T. League petition, the Department of Justice said that its "outstanding aspect" is its "tacit concession" that the railroads overcharged the government on its wartime freight, for "otherwise the principal ground set forth by the league as justification for its proposed intervention would not exist." "The league's principal ground for intervention necessarily denotes that its position will be that the overpayments, made to the railroads by the government, should not be recovered because it is likely that such a recovery would increase the freight rates to be paid by its members, a ground which it is likely they would consider to be untenable and lacking in substance were any member seeking reparations from the carriers," it said.

According to the reply, the gross operating revenues of Class I roads exceeded $8.5 billion in 1947 and are "likely to exceed" $10 billion in 1948. "Thus," it added, "if the government should recover in one year all of the alleged damages, assuming the league's figures are correct, . . . the net recovery should have no serious impact upon the rate structure, especially where, as here, the railroads have reserves out of past earnings available for application against any such awards. And when the fact is considered that recovery may extend over several years, it becomes apparent that the league, like the proverbial ground hog, has been scared by a shadow which disappears when the proper light is focussed on the object."

The government, if successful in its reparations suits against the railroads, will get more money from the railroads by means of taxes plus reparations than the rail lines originally received from the government in payment for services rendered during the war, Edwin C. Matthias, vice-president and general counsel of the Great Northern, told members of the Willmar (Minn.) Chamber of Commerce on April 6. The government "wants to eat its cake and have it, too," Mr. Matthias declared. The speaker pointed out that, while the government paid the carriers $5.6 billion in freight charges from 1942 to 1945, the railroads during the same period paid nearly $3.7 billions in taxes.

I.C.C. Should Approve Buyer of Barge Lines, Says Chicago Body

Declaring that it is "essential" to the maintenance of a sound national transportation system that the government withdraw from that field, the transportation committee of the Chicago Association of Commerce & Industry has recommended that the association favor legislation providing for the sale or lease of the Federal Barge Lines to private operators and for "disposition of the property of the Inland Waterways Corporation at the earliest possible date" (See *Railway Age* of March 6, page 59).

The committee further recommended that a proviso be added to the proposed bills, reading substantially as follows: "That no part of the transportation facilities or operating rights shall be disposed of to any person, firm or corporation until the Interstate Commerce Commission finds that such person, firm or corporation is fit, willing and able to continue the operation within the intended meaning of the Interstate Commerce Act." It was recommended also that the purchaser "should not be required to continue the same service as that now maintained by the Federal Barge Lines, but should be required to maintain a general common carrier service at just and reasonable rates including joint services between railroads and the barge line."

Librarians on Radio Program

"Sources of Transportation Research in the Nation's Capital" was discussed by representatives of six transportation libraries in Washington, D. C., on a radio program broadcast April 3 over Station WQQW, Washington. Among those participating in the discussion were Francis Thorne, assistant librarian, Interstate Commerce Commission, and Elizabeth O. Cullen, librarian, Bureau of Railway Economics, Association of American Railroads.

C. & O. President Will Answer No More Jackson Questionnaires

Robert J. Bowman, president of the Chesapeake & Ohio, has advised George S. Jackson, of 230 West End avenue, New York, the C. & O. stockholder who has challenged that company's management on several recent occasions, that he, Mr. Bowman, would "not be justified" in furnishing to Mr. Jackson the "detailed information" sought by the latter in telegrams dated March 17 and 19 and in a letter dated March 22. Copies of Mr. Jackson's letter,

which, as reported in *Railway Age* of April 3, page 60, pertained to the C. & O.'s experience with its first steam-turbine locomotive, among other issues, and Mr. Bowman's March 23 reply, have been submitted by their respective authors to the Interstate Commerce Commission.

The letters have been placed by the commission in the correspondence file of the Finance Docket No. 14692 proceeding, which involves the petition of the C. & O. and Alleghany Corporation for release of the former's 400,000 shares of New York Central stock from the requirement whereby it has been deposited with the Chase National Bank as independent voting trustee under the trusteeship created pursuant to the commission's June, 1945, decision approving Alleghany's control of C. & O. The commission also has under consideration the related applications of Mr. Bowman and Robert R. Young, chairman of Alleghany and C. & O., for authority to serve on the N.Y.C. board of directors while continuing to hold C. & O. directorships and their present positions with that road. As noted in *Railway Age* of December 13, 1947, page 64, Assistant Director C. E. Boles of the commission's Bureau of Finance has recommended denial of both applications. Oral argument in the proceedings was held before the commission on February 27, as reported in *Railway Age* of March 6, page 60.

According to Mr. Bowman's March 23 letter, Mr. Jackson has, in the past few months, requested a "great deal" of information about the C. & O's affairs and "up to date we have tried to furnish you full and complete replies to all these inquiries."

"For instance," he continued, "your letter of January 17 [see *Railway Age* of January 31, Page 50] consisted of six pages of elaborate questions. My reply of February 26 [see *Railway Age* of March 6, page 46] which consisted of 20 pages and two exhibits, required the attention of several members of the C. & O. organization for a period of more than a month; but I was willing to direct this expenditure of time and energy on the part of our forces because I assumed that in view of the comprehensive nature of your inquiries, your letter contained all of the questions that you had in mind about C. & O. operations.

"I now find, however, that your telegram of March 17 asks at least 15 additional questions, your telegram of March 19 more than a dozen additional questions, while your letter of March 22 contains 36 numbered questions, many of which contain various subquestions. It is apparent that to furnish replies to all of these interrogatories would require taking a large part of our staff off other duties with consequent impairment of our necessary functions. The officers and staff of the company are much too busy with the important business of the company to justify diverting them to the making of the studies which you have requested."

Mr. Bowman told Mr. Jackson that the C. & O. has "no desire" to withhold any "pertinent information" from its stockholders and that it is "perfectly willing at all times" to comply with any "reasonable requests" for information regarding the C. & O's operations and affairs. "But," he added, "much as we desire to meet all reasonable requests of this nature, I cannot justify diverting the officers and staff of this company from their important functions of running this railroad to making investigations and studies necessary to reply in detail to your apparently limitless inquiries. The affairs of a large railroad, such as the Chesapeake & Ohio, are so extensive that there could be no end to question-making if a stockholder's curiosity extends to such bounds. Frankly, in your case, I think you have now exceeded the bounds of reasonableness and propriety."

Mr. Bowman informed Mr. Jackson that the C. & O. has shown him every "courtesy and consideration" in replying to the requests heretofore made. He added, however, that "your repeated further inquiries" and recent "public

SELECTED INCOME AND BALANCE-SHEET ITEMS OF CLASS I STEAM RAILWAYS IN THE UNITED STATES

Compiled from 127 reports (Form IBS) representing 131 steam railways.
(*Switching and Terminal Companies Not Included*)

All Class I Railways

Income Items	For month of December 1947	For month of December 1946	For the twelve months of 1947	For the twelve months of 1946
1. New railway operating income	$80,021,828	$103,754,012	$780,713,564	$619,828,525
2. Other income	34,076,437	37,868,862	229,015,438	209,352,979
3. Total income	114,098,265	141,622,874	1,009,729,002	829,181,504
4. Miscellaneous deductions from income	5,964,991	7,058,286	45,011,542	34,375,212
5. Income available for fixed charges	108,133,274	134,564,588	964,717,460	794,806,292
6. Fixed charges:				
6-01. Rent for leased roads and equipment	11,088,254	14,935,458	125,588,392	123,933,557
6-02. Interest deductions§	25,647,082	25,707,167	307,496,366	339,221,717
6-03. Other deductions	391,495	253,904	2,067,454	1,599,482
6-04. Total fixed charges	37,126,831	40,896,529	435,152,212	464,754,756
7. Income after fixed charges	71,006,443	93,668,059	529,565,248	330,051,536
8. Contingent charges	10,794,216	4,610,841	49,578,768	39,242,059
9. Net income†	60,212,227	89,057,218	479,986,480	290,809,477
10. Depreciation (Way and structures and Equipment)	29,650,647	28,843,667	362,752,338	341,872,671
11. Amortization of defense projects	1,420,543	684,806	16,200,148	9,952,914
12. Federal income taxes	24,032,357	*69,408,153	297,800,136	*15,479,853
13. Dividend appropriations:				
13-01. On common stock	20,496,866	22,058,959	181,706,350	175,962,457
13-02. On preferred stock	9,105,346	12,527,412	54,759,213	58,649,278
Ratio of income to fixed charges (Item 5÷6-04)	2.91	3.29	2.22	1.71

All Class I Railways

Selected Asset and Liability Items	Balance at end of December 1947	Balance at end of December 1946
17. Expenditures (gross) for additions and betterments—Road	$285,877,464	$231,151,772
18. Expenditures (gross) for additions and betterments—Equipment	561,359,962	317,602,462
19. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	584,268,291	579,946,759
20. Other unadjusted debits	188,148,826	161,591,841
21. Cash	942,506,068	872,735,848
22. Temporary cash investments	966,384,254	1,104,167,479
23. Special deposits	136,113,805	165,883,358
24. Loans and bills receivable	12,697,084	467,833
25. Traffic and car-service balances—Dr.	56,874,837	43,354,966
26. Net balance receivable from agents and conductors	137,568,872	130,271,396
27. Miscellaneous accounts receivable	332,531,304	295,986,140
28. Materials and supplies	765,540,081	653,930,359
29. Interest and dividends receivable	16,601,614	22,738,914
30. Accrued accounts receivable	174,873,941	175,732,283
31. Other current assets	34,455,345	33,135,359
32. Total current assets (items 21 to 31)	3,576,147,205	3,498,403,935
40. Funded debt maturing within 6 months‡	126,265,856	88,274,575
41. Loans and bills payable	4,755,000	9,545,600
42. Traffic and car-service balances—Cr	105,233,830	103,013,833
43. Audited accounts and wages payable	511,374,394	470,429,487
44. Miscellaneous accounts payable	232,574,563	176,183,317
45. Interest matured unpaid	66,671,318	76,329,142
46. Dividends matured unpaid	25,116,656	15,605,486
47. Unmatured interest accrued	64,455,366	58,715,514
48. Unmatured dividends declared	20,430,086	29,569,182
49. Accrued accounts payable	180,310,584	169,694,229
50. Taxes accrued	632,977,126	376,047,33[illegible]
51. Other current liabilities	99,075,902	99,814,974
52. Total current liabilities (items 41 to 51)	1,942,973,825	1,584,948,146
53. Analysis of taxes accrued:		
53-01. U. S. Government taxes	515,606,858	269,000,506
53-02. Other than U. S. Government taxes	117,370,268	107,046,876
54. Other unadjusted credits	337,133,736	377,727,644

§ Represents accruals, including the amount in default.
† After a deduction of $3,717,256 taken out of operating revenues to create reserves for land grant deductions in dispute.
‡ Includes payments of principal of long-term debt (other than long-term debt in default) which will become due within six months after close of month of report.
* Decrease, deficit, or other reverse item.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission Subject to revision.

utterances" in the press and elsewhere have indicated to the C. & O. that "your purpose now extends beyond the interest of a stockholder inquiring into the company's affairs. I cannot permit you to continue placing an unreasonable burden on our organization to the detriment of the company's business regardless of the motives underlying your repeated inquiries."

According to the C. & O. president, Mr. Jackson, as a C. & O. stockholder, is entitled to inspect the books and records of the company for "any proper purpose." "The books and records of the company are open for inspection, and we have no desire to refuse the request of this nature within the limits of propriety," he concluded. "I cannot, however, justify placing C. & O. personnel at your disposal to prepare at the company's expense all of the statements, analyses and information you may desire or think pertinent to whatever objectives you may have in mind."

Correction—A.R.E.A. Committee

In the report of the annual convention of the American Railway Engineering Association, which was published in the March 20 issue of the *Railway Age*, it should have been indicated, in connection with the abstract of the report of the Committee on Water Service and Sanitation on page 76, that H. F. King, special engineer, Erie, was chairman of this committee, rather than E. M. Grime, engineer water service (retired), Northern Pacific. Mr. Grime retired as chairman of this committee a year ago, at which time the position was assumed by Mr. King

42 Rail-Institute Students Awarded A.U. Certificates

Forty-two students who completed the course of the Third Annual Rail Transportation Institute conducted by the American University, Washington, D. C., were awarded certificates at a dinner session in Washington's Hotel 2400 on March 31. Dr. L. M. Homberger, professor of transportation at the university, was director of the institute, and the students included representatives of 20 railroads.

The certificates were presented by the university's president, Dr. Paul F. Douglass, the presentation following an address by R. V. Fletcher, special counsel and former president of the Association of American Railroads, who is chairman of the university's board of trustees. On the previous evening the institute had been addressed by Director J. Monroe Johnson of the Office of Defense Transportation.

Judge Fletcher spoke on the "Position of the Railroads in the Postwar Economy," describing his view of the cutlook generally as being one of "restrained and cautious optimism." He thinks that private operation of the railroads will continue in this country and he does not think that railroad competitors will

Class of the third annual Rail Transportation Institute of the American University, Washington, D. C. with the director, Professor L. M. Homberger (front row, center)

make any more serious inroads than they had before the war. At the same time he foresaw losses of traffic if there should be a movement for the relocation of industries. On that matter, he said he did not know "how much higher you can put these freight rates before you run into the law of diminishing returns."

With respect to passenger traffic, Judge Fletcher said he didn't think the railroads were "entirely without hope of retaining a substantial amount" of that business. He pointed out that at no previous time had the railroads spent as much money for passenger equipment as is involved in current modernization programs. Noting how wartime predictions that all postwar travelers would "take to the air" have failed to come true, he stated that most of the major air lines are in "desperate" financial condition, sustained only by mail subsidies.

In his address of the previous evening O.D.T. Director Johnson reviewed the wartime and postwar activities of that agency. Among other things, he said that 10 per cent of the surplus material "piled mountain high all over the world" by the armed forces would have put the railroads on "easy street" with respect to their needs for rail, rolling stock and other vital equipment. The O.D.T. director went on to say that at least 600,000 new freight cars are needed by the railroads, particularly if this country goes to war again. "If the Department of Defense gets into the steel market," he added, "the car builders and railroads won't get the materials to build a sufficient number of cars and it will be another tight squeeze. We'll still have transportation, however, even without increased freight car production —but not as much as we had in the last war."

Colonel Johnson also said he hoped the production of new freight cars would soon increase to 10,000 monthly under the voluntary agreement which has been prepared by the Department of Commerce's Office of Industry Cooperation for the allocation of steel. In this connection, however, he conceded that other industries, such as petroleum and the manufacturers of agricultural equipment, also were in need of the same materials.

American Experience Favors Private Ownership, Says Faricy

If war should come to the United States again the country's railroads should continue to be privately operated, William T. Faricy, president of the Association of American Railroads, said in Havana, Cuba, on April 4 in a paper read before the Pan-American Railway Congress. Mr. Faricy added that "the experiences of the United States in two world wars have strikingly demonstrated the superior advantages of private ownership and private operation of railroads so far as that country is concerned."

Mr. Faricy declared in a statement released before he read his paper that the international situation requires immediate steps to prepare the railroads of this country for any national emergency. "With the exception of the armed forces themselves, and the atomic

bomb, no part of the process of getting ready is more important to America's national safety than keeping the railroads in shape," he said. To prepare the railroads for an emergency, they must be allowed to make up in 1948 the loss they have sustained since the end of the war through the dismantling of 34,000 more freight cars than were built. "The time has come," he continued, "when this loss must be overcome and railroad capacity increased. For their part railroads of the United States have on order more than 120,000 freight cars and, along with the carbuilders, the producers of materials and the interested government agencies, they are doing their utmost to push production up to and beyond the goal of 10,000 cars a month. Is it not better to do this now, when car building is competing for scarce materials with peacetime manufacture only, than it would be to wait until there might be competition for the same scarce materials with the army, the navy and the air force?"

In a paper read to the Pan-American Railway Congress on April 3 Mr. Faricy said that gage standardization of railroads in the Latin American countries would do much to further hemispheric solidarity. He proposed that such a step be given careful study with the view to promoting the free exchange of the products of North and South America. Railroad gage standardization in the United States, he reminded his audience, was not brought about by legislative or governmental action, but was the result of commercial forces and the judgment of men in the privately operated railroad business.

U.P. Pacific Time Operations Extended to Salt Lake City

Division 2 of the Interstate Commerce Commission has further modified commission orders in the Standard Time Zone Investigation, to permit the Union Pacific to conduct its train operations between Los Angeles, Cal., and Salt Lake City, Utah, on Pacific Standard Time. The U.P. heretofore has operated between Los Angeles and Caliente, Nev., near the Nevada-Utah state line on Pacific time and thence to Salt Lake City on Mountain Standard Time. The commission's report was by Commissioner Aitchison and the accompanying order will become effective at 2 a.m., April 11.

Emphasizes Link between National Welfare and Railroad Health

The present and future welfare of the American people is linked inseparably with the welfare of the railroad industry, F. A. Dawson, vice-president, New York Central lines east, said on April 8 in an address before the Atlantic States Shippers Advisory Board in Syracuse, N. Y. Despite this bond of interest, Mr. Dawson went on, the return to the railroad investor has been pitifully small in recent years and in some cases it has been absolutely nil. "Without the investor," he reminded his audience, "the ability of the railroads to provide employment, make necessary improvements and buy new equipment—in short, to continue being one of your best customers—is seriously threatened. Investors must be assured that their money will earn an adequate return if they are to continue making investments in railroads."

Railroads would be encouraged to make further improvements if assurance could be given that taxes would not be increased as a direct result of the improvements, Mr. Dawson stated. "Now the question that I want to leave with you today is just this," he concluded. "How can private investment in railroad improvements be made to live alongside public investment in tax-free competing forms of transportation?"

"Red Cap" Fee Again Assailed In Complaint before I.C.C.

The United Transport Service Employees, Congress of Industrial Organizations and others have asked the Interstate Commerce Commission to declare void the recent increase from 10 to 15 cents in the per-piece charge for handling the baggage of railroad passengers in "red cap" service. The complainants also have asked the commission, after a hearing and investigation, either to order the restoration of the 10 cent fee or declare even that rate unjust and unreasonable and to enter such orders for damages or reparations as it may consider proper.

The complaint, which names 35 railroads, terminal companies and depots as respondents, asserts that the 15 cent fee is "unlawful" and in violation of the national transportation policy.

Further Hearing on Mail Pay Scheduled to Start May 12

The Interstate Commerce Commission has set May 12 as the date of further hearing in the Docket No. 9200 proceeding, wherein the railroads are seeking an increase of 45 per cent in mail pay rates. The hearing will be held at the commission's Washington, D. C., offices before Commissioner Mitchell and Examiner Mullen.

As reported in *Railway Age* of December 27, 1947, page 59, a December 4 order of the commission approved a temporary increase of 25 per cent in mail pay for steam railroads generally. The latter advancement became effective February 1 and was retroactive to February 19, 1947.

The commission also has instituted an investigation into the mail pay rates of 13 electric roads, which, as reported in *Railway Age* of March 20, page 100, seek to increase their mail pay rates by not less than 45 per cent of the rates now in effect. No date, however, has been set for hearing on this petition. The 13 roads, whose mail pay rates have remained unchanged since 1925, were not affected by the commission's order of last December 4. They seek to make the increase effective March 5.

1947 Capital Outlay Highest Since 1930

Total includes $565,901,000 for rolling stock purchases

Capital expenditures for equipment and other improvements to railway property made by Class I railroads in 1947 totaled $864,689,000, which exceeded by more than 50 per cent the maximum amount spent in any year since 1930, the Association of American Railroads announced this week. In making comparisons with expenditures for previous years, consideration should be given to the fact that the average cost of railway materials is now about 78 per cent greater than it was eighteen years ago, the A.A.R. said. Prices of equipment in some instances, however, have more than doubled.

Capital expenditures in 1947 for railway equipment, including locomotives and freight and passenger cars, totaled $565,901,000, which was greater than for any year since 1923, when they amounted to $681,724,000. Such expenditures would have been much larger in the past year had not inability to sesure adequate supplies and materials somewhat limited the production of new railway equipment. Including the carryover from 1946, Class I railroads last year authorized expenditures of $1,265,989,000 for new equipment. Deducting the amount actually spent during the year, railroads had on January 1, 1948, a carryover of unexpended authorizations amounting to $700,088,000, the greatest amount for any corresponding period since the compilation of these records began in 1921. This carryover into the present year included orders for more than 105,000 new freight cars, nearly 2,500 passenger cars and 1,226 locomotives. Additional orders for railway equipment have been made since January 1.

Of the total amount expended in 1947, Class I railroads spent $248,371,000 for freight cars, the largest since 1924, and $80,102,000 for passenger cars, which was greater than in any year since 1921. For locomotives, expenditures in 1947 amounted to $222,626,000 which exceeded such expenditures for any year since 1921.

Capital expenditures made by Class I railroads for roadway and structures in 1947 totaled $298,788,000, which was greater than in any year since 1930. These expenditures included the following: heavier rail, $44,628,000, the greatest amount for any one year since 1930; yards and sidings, $43,792,000; signals and interlockers, including telegraph lines, automatic train control,

Gross Capital Expenditures (in thousands) on Railway Property—1943 to 1947*

Class I Railways — United States

Item	1947	1946	1945	1944	1943
EQUIPMENT					
Locomotives	$222,626	$97,310	$127,934	$178,017	$142,070
Freight-train cars	248,371	159,282	138,114	134,533	97,890
Passenger-train cars	80,102	47,169	30,843	1,921	5,828
Other equipment	14,802	15,256	17,888	13,760	10,193
Total Equipment	$565,901	$319,017	$314,779	$328,231	$255,981
ROADWAY AND STRUCTURES:					
†Additional main track	$18,504	$14,781	$15,566	$20,616	$18,493
Yards and sidings	43,792	36,427	31,733	36,666	39,254
Heavier rail	44,628	31,545	37,579	35,720	32,227
Additional ballast	5,141	4,960	6,343	6,997	6,229
Shops and engine houses (including machinery and tools)	38,742	34,289	38,243	28,131	15,615
Station and office buildings and other station facilities	25,030	17,119	14,549	13,433	10,320
Bridges, trestles and culverts	26,627	24,972	24,364	25,088	20,673
Signals & interlockers, incl. telephone & telegraph lines, auto. train cont., etc.	39,120	29,757	30,039	22,091	16,041
All other improvements	57,204	49,090	49,785	43,139	39,449
Total Roadway and Structures	$298,788	$242,940	$248,201	$231,881	$198,301
Grand Total	$864,689	$561,957	$562,980	$560,112	$454,282

* Compiled by the Bureau of Railway Economics, Association of American Railroads.
† Includes rail and tie fastenings and other track material.

etc., $39,120,000; shops and engine houses (including machinery and tools), $38,742,000; bridges, trestles and culverts, $26,627,000; station and office buildings and other station facilities, $25,030,000; additional main track, $18,504,000; additional ballast, $5,141,000, and for other improvements, $57,204,000.

Capital expenditures made annually by Class I railroads in the past eighteen years were listed in the A.A.R. statement as follows:

1947	$864,689,000
1946	561,957,000
1945	562,980,000
1944	560,112,000
1943	454,282,000
1942	534,897,000
1941	543,021,000
1940	429,147,000
1939	262,029,000
1938	226,937,000
1937	509,793,000
1936	298,991,000
1935	188,302,000
1934	212,712,000
1933	103,947,000
1932	167,194,000
1931	361,912,000
1930	872,608,000

More detailed data for expenditures in recent years, including 1947, for the principal equipment and roadway items are shown in the accompanying table.

Many Joining New Plan For Steel Allocations

The Department of Commerce's Office of Industry Cooperation was this week receiving what was described as a good response to its requests for compliance with the new "voluntary" agreement for the allocation of steel for use in the freight car building and repair program. O.I.T.'s requests went out to prospective participants among steel producers, car builders, railroads, component parts manufacturers, and private car lines on March 31 after Attorney General Clark had given the required anti-trust clearance for the plan.

The plan, which was framed to conform with Public Law 395 enacted December 30, 1947, will supplant the allocation arrangements worked out last year by the Office of Defense Transportation and the steel industry. As reported in the *Railway Age* of March 27, page 58, the new plan was the subject of a recent public hearing at which opposition was expressed by the American Railway Car Institute and four western railroads.

The final form of the plan embodies changes in the tentative draft which was considered at the hearing. Those changes include modifications of the reporting requirements which had aroused much of the opposition. For example, the original draft would have required car builders and railroads to make monthly reports to O.D.T. showing the quantities and types of steel received under the program "from individual steel mills." The final draft requires such reports only as to "total quantities of steel by products" received under the program.

The O.D.T. plan's anti-trust clearance expired April 1; and O.D.T. Director J. Monroe Johnson advised those to whom the new plan was submitted that "after April 1 we will either have the plan of the Secretary of Commerce or no plan at all, that is, no plan that will permit of cooperative effort of steel producers, car builders, etc., such as has existed since March, 1947." O.D.T. announced last week that the steel industry had agreed to the new plan, and it was learned that interested government officials considered this week's receipts of compliance notices as a good indication that most of those participating in the former plan, including 32 steel producers, go along. There were 276 participants in the former plan, including 32 steel producers, 23 pig iron producers, 11 contract car builders, 134 railroads, 68 component parts manufacturers, and 8 private car lines.

The only change which the new plan will bring, as Colonel Johnson's notice put it, "is that, whereas under the informal program participants had only certain limited assurances from the Department of Justice in respect of prosecutions for violations of the anti-trust statutes, the plan of the Secretary of Commerce will provide all participants with full protection against liability under the anti-trust laws or the Federal Trade Commission Act for acts or omissions in compliance with the written request of the Secretary of Commerce and the provisions of the plan."

A statement from O.I.T. said the plan, designated Voluntary Allocation Plan No. 1, will provide approximately 250,000 tons of steel monthly for car building and repairs. The new-construction phase remains on the 10,000-car monthly basis. At present, no allocations of pig iron are anticipated; but the plan makes provision for such allocations if they become necessary. The O.I.T. statement further described the plan as "basically the same program" that has been carried on under supervision of O.D.T.

"Except for the determination by the Secretary of Commerce of quarterly overall quantities of steel for the program, O.D.T. will continue to carry out details of the program as it has been doing," the statement continued. "This manner of handling the program, without any substantial change in its operation, should effect its transition from an informal basis to a formal agreement under Public Law 395 without any loss in its momentum."

Will Begin Construction Soon On Chicago RR Fair Grounds

Construction work in preparation for the Chicago Railroad Fair — to be held in that city for six weeks starting in July — is scheduled to begin about the middle of April, according to officers of the show. As noted in *Railway Age* of February 14, page 70, and March 6, page 66, the fair will celebrate the entrance of the first steam locomotive into Chicago 100 years ago. The purpose of the spectacle, as outlined by its backers, is "to present with dramatic force the hand-in-hand way in which the railroad industry pioneered and aided in the transformation of the country from backwoods wilderness and prairie into productive agricultural and industrial areas, through periods of peace, war and prosperity, down to the present day."

A permanent railroad spur track, connecting with the Illinois Central and leading to the fair grounds facing Lake Michigan, will be constructed to facilitate movement of all types of railroad equipment to and from exhibition tracks inside the area. Other construction projects include a 7,000 ft. fence around the fair grounds and a parking lot to accommodate 1,750 cars. A narrow-gage railroad train equipped with open cars will carry visitors from one end of the grounds to the other.

Probe of Leasing of Vehicles By Truckers Set Back to October

The Interstate Commerce Commission has set back to October 14 its scheduled April 19 hearing with respect to its investigation of the leasing and interchanging of vehicles by common-carrier and contract truckers. The proceeding is docketed as Ex Parte

No. MC-43. The hearing will be held at Washington, D. C., before Examiner C. Evans Brooks.

Freight Car Loadings

Loadings of revenue freight for the week ended April 3 totaled 661,807 cars, the Association of American Railroads announced on April 8. This was 2,568 cars, or 0.4 per cent, below the previous week, 53,352 cars, or 7.5 per cent, below the corresponding week last year, and 18,163 cars, or 2.8 per cent, above the corresponding 1946 week.

Loadings of revenue freight for the week ended March 27 totaled 664,375 cars, and the summary for that week as complied by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings
For the Week Ended Saturday, March 27

District	1948	1947	1946
Eastern	136,782	160,581	160,428
Allegheny ...	141,299	175,569	182,868
Pocahontas ..	22,997	66,572	65,099
Southern	118,460	139,931	140,413
Northwestern	76,355	90,055	83,477
Southwestern .	62,708	67,458	62,770
Central West.	105,774	129,226	114,087
Tot. West. Dis.	244,837	286,739	260,334
Tot. All Roads	664,375	829,392	809,142
Commodities:			
Grain, gr prod	37,151	51,256	42,631
Livestock ...	8,750	14,101	15,869
Coal	46,188	174,990	186,217
Coke	11,380	14,362	13,182
Forest products	45,957	50,503	39,508
Ore	16,073	13,222	9,748
Mdse. l.c.l....	114,271	125,134	128,463
Miscellaneous	384,605	385,824	373,524
March 27 ..	664,375	829,392	809,142
March 20 ..	700,482	844,041	804,606
March 13 ..	797,033	841,147	799,906
March 6 ..	792,571	805,775	786,189
February 28 ..	791,089	849,991	782,397
Cumulative total, 13 weeks ...	9,856,383	10,517,733	9,732,979

In Canada.—Carloadings for the week ended March 27 totaled 68,813 cars as compared with 76,239 cars for the previous week and 70,203 cars for the corresponding week last year, according to the compliation of the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Tot. Cars Rec'd from Connections
Totals for Canada:		
March 27, 1948	68,813	39,906
March 29, 1947	70,203	39,912
Cumulative totals for Canada:		
March 27, 1948	928,960	446,163
March 29, 1947	884,982	482,254

OVERSEAS

New Trans-Andine Railroad Opened

The official opening last month of a railroad linking Salta, Argentina (approximately 1,000-mi. northwest of Buenos Aires by rail), with the Pacific port of Antofogasta, Chile, has been reported. This line, together with portions of the existing Argentine railway system, constitutes an additional rail route from the Atlantic to the Pacific. The building of the trans-Andine line — a joint enterprise of Argentina and Chile, each country undertaking the construction within its own borders — was begun several years ago but work was suspended during the war because of the unavailability of certain materials. (See the *Railway Age* of May 15, 1937, page 838, and May 22, 1937, page 888).

Uruguay.—The Uruguayan government is prepared to consummate the purchase of all British-owned railroads in Uruguay at a total cost of £7,100,000, it was reported in a recent issue of Foreign Commerce Weekly. Among the railroads involved are the Central Uruguay (970 mi.), the Midland Uruguay (285 mi.), the Midland Uruguay Extension (35 mi.), the North Western (113 mi.) and the Uruguay Northern (73 mi.).

Sweden.—Modern, brightly colored streamlined trains in three-car units are now under construction for the Swedish State Railways, to go into service this fall on the electrified line between Gothenburg and Stockholm. The schedules will provide five hours for the 300-mile run. Arrangements will be provided for light meal service at passengers' seats. Equipment will include swivel chairs and loud-speakers for train announcements. The view ahead from the forward car will be unobstructed, as the engineman's compartment is separated by a clear glass partition.

SUPPLY TRADE

The **Leslie Company,** Lyndhurst, N. J., has announced the appointment of the following agents to handle industrial sales and service: **Welby C. Rouse,** Greensboro, N. C., to cover North Carolina; the **Equipment Sales Corporation,** Kingsport, Tenn., to cover eastern Tennessee; and **Landes, Zachary & Peterson,** Denver, Colo., to cover Colorado, Wyoming, New Mexico and Utah, and El Paso, Tex.

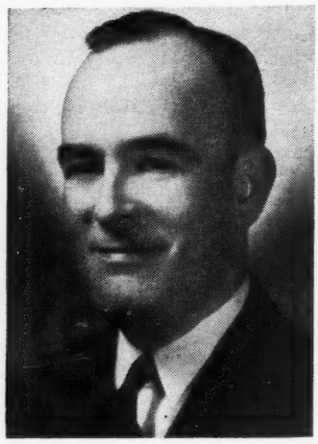
A portion of the biographical sketch of **I. C. Miller,** newly-elected vice-president of the **T. J. Moss Tie Company,** with headquarters at St. Louis, Mo., was inadvertently left out of the announcement of his promotion, which appeared in the *Railway Age* of April 3. Mr. Miller was born on June 11, 1910, at Columbus, Miss., and, after a public school education, he entered the service of the T. J. Moss Tie Company in 1928. From September, 1928 to 1929, he served as timekeeper at the local plant in Columbus, which was then under construction. He served as clerk from 1929 to 1931; as office manager from 1931 to 1933; as yard foreman from 1933 to 1935; and as plant superintendent from 1935 to 1940. In the latter year, Mr. Miller was sent to St. Louis as assistant general superintendent of plants, becoming general superintendent of plants in 1943.

Earl J. Goris, whose appointment as advertising manager of the **Dearborn Chemical Company,** at Chicago, was reported in *Railway Age* of February 14, is a graduate of Northwestern University's School of Commerce, and was formerly in the advertising department

Earl J. Goris

of the General Electric X-Ray Corporation, at Chicago. Earlier in his career, Mr. Goris was associated with the Chicago advertising firm of Aubrey, Moore & Wallace, the Honolulu Advertiser in Hawaii and the Wade Advertising Agency in Chicago.

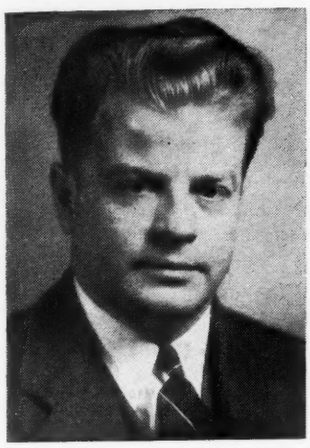
James E. McNamara, vice-president of the Journal Box Servicing Corporation, at Indianapolis, Ind., has been appointed vice-president—reclamation, of the **Peerless Equipment Company,** at Chicago. Mr. McNamara, a native of Indianapolis, attended the University of Notre Dame and, in 1938, joined the staff of service engineers of the Journal Box Servicing Corporation. In 1941 he entered the Military Railway Service, subsequently serving in India, Burma and China. For a time he was fuel agent of the 705th



James E. McNamara

Railway Grand Division, and later he became aide to the commanding general of railway forces in the India-Burma Theater. He was released from military service as a captain in December, 1945, and returned to the Journal Box Servicing Corporation as service engineer. He was later appointed vice-president, which post he held at the time of his recent appointment with Peerless. In his new position, Mr. McNamara will concentrate his efforts, at present, on contract sales of journal box waste reclamation and service.

The **Westinghouse Electric Corporation** has announced the appointments of **Charles H. Weaver** as industrial manager and



Charles H. Weaver

Quincy M. Crater as transportation manager, each responsible for central district sales activities in his respective field. Mr. Weaver, formerly marine and aviation sales manager at the company's East Pittsburgh, Pa., works, joined the

Quincy M. Crater

Westinghouse graduate student course in 1936. After four years in the general sales department he was transferred to the marine section of the industrial department. In 1943 he was appointed manager of the newly formed marine department, which also took over aviation section activities in 1945.

Mr. Crater joined Westinghouse in 1927 as an office assistant in the engineering department at Pittsburgh. He later served in various sales capacities at Chicago, St. Louis, Mo., and South Philadelphia, Pa., before returning to East Pittsburgh in 1938, as manager of the petroleum and chemical section. He was appointed assistant manager of the Detroit, Mich., office in 1944.

E. J. McGehee, a vice-president of the **Koppers Company,** has been assigned responsibility for the firm's wood-preserving activities throughout the western half of the United States, it was announced this week. Mr. McGehee, who has been staff sales manager, with headquarters in Pittsburgh, Pa., will now

E. J. McGehee

make his headquarters in Chicago. He first became associated with the Koppers organization in 1934 and since then has served in various executive positions in connection with the com-

H. R. Condon

pany's production and sale of pressure-treated timber for railroad and utility work.

H. R. Condon, vice-president in the wood preserving division, has been assigned responsibility for wood preserving activities in the eastern half of the country, with headquarters as before at Pittsburgh. Since joining Koppers in 1939 Mr. Condon has served in an administrative capacity in various phases of the production, sales and procurement of forest products.

L. W. Stolte, secretary of **Fairbanks, Morse & Co.,** and **Frederick J. Heaslip,** director of purchases, both with headquarters at Chicago, have been elected directors of the firm. They succeed **A. E. Ashcroft** and **F. C. Dierks,** retired.

T. C. Stikkers, field engineer of the railway division of the **Dayton Rubber Company,** has been appointed district

T. C. Stikkers

sales representative for the central territory, with headquarters at Dayton, Ohio, and **L. K. Covelle, Jr.,** also field engineer, railway division, has been ap-

L. K. Covelle, Jr.

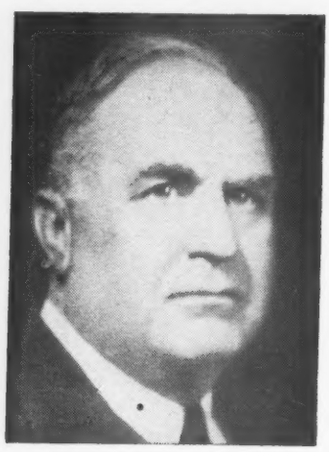
pointed district manager for the eastern territory, with headquarters in the Harborside terminal, Jersey City, N. J. Mr. Stikkers was with the Pullman Company, Chicago, from 1939 to 1946, in which year he joined Dayton Rubber. Mr. Covelle joined the company on August 1, 1946.

The **Geo. S. Mepham Corporation** has announced that the firm name has been changed to **C. K. Williams & Co.**

The **Automatic Transportation Company,** Chicago, has appointed three firms as sales and service agents in five states, as follows: The **George E. Miller Company,** Watertown, Mass., to cover Maine and New Hampshire and five northeastern counties in Massachusetts; **Freeman Industrial Service, Inc.,** Providence, R. I., to cover Rhode Island and five southeastern counties in Massachusetts, and **G. Cass Lightner,** Thetford, Vt., to cover Vermont.

The **American Car & Foundry Co.,** has announced the establishment of a new tool and die control division, with **H. O. Amble** in charge. Mr. Amble will make his headquarters at the Berwick, Pa., plant, where he has worked as mechanical engineer since 1932. **H. F. Schwarting,** formerly general electrical engineer at the St. Louis, Mo., plant, has been appointed assistant district manager of the Madison, Ill., plant. The company also has announced the new location of its district sales office at 1628 K street, N. W., Washington, D. C.

William C. Appleby, assistant to the president of the southern wheel division of the **American Brake Shoe Company,** has retired after 42 years' service. Mr. Appleby worked in various engineering



William C. Appleby

and supervisory capacities in company plants in the south for nearly 23 years. He was transferred to New York in 1929 and was appointed assistant to the president of the southern wheel division in 1944.

William J. Hammond, formerly vice-president in charge of railroad sales for the Inland Steel Company, at Chicago, has been elected vice-president of the **Purdy Company,** with headquarters at Chicago.

The recent announcement by the **Yale & Towne Manufacturing Co.** regarding the consolidation of sales and service facilities in the Chicago area neglected to mention that specialized services for the railroad field, long prosecuted independently by **Earl Thulin** in Chicago, will contine to be separately handled.

The **Kennedy Valve Manufacturing Company** has announced the election of **Charles F. Kennedy** as president. Mr. Kennedy joined the company in 1937 and has been vice-president and works manager since June, 1947.

C. C. Wiley, district sales manager of the **Link-Belt Company,** at Birmingham, Ala., has been appointed district sales manager at Baltimore, Md. He is succeeded by **James T. Bell.**

OBITUARY

Leon H. Marsh, vice-president and secretary of the Kennedy Valve Manufacturing Company, died on March 11, following a heart attack.

David Hindahl, who retired in 1946 as general manager of the Rodger Ballast Car Company, at Chicago, died at the Norwegian American Hospital in that city on March 18.

EQUIPMENT AND SUPPLIES

FREIGHT CARS

9,302 Freight Cars Built Last Month

Freight cars produced last month for domestic use totaled 9,302, including 2,362 built in railroad shops, compared with February production of 8,463, which included 2,157 built in company shops, it has been announced by the American Railway Car Institute. New freight cars ordered last month for domestic use, the institute said, amounted to 13,427, including 2,050 ordered from railroad shops, compared with February orders for 10,698 cars, including 5,725 ordered from railroad shops. (The February order figures have been revised.) The backlog of freight cars on order and undelivered on April 1 was 126,028, including 36,732 on order from railroad shops.

The **Chesapeake & Ohio** has ordered 3,000 70-ton hopper cars at an estimated cost of $12,250,000. The American Car & Foundry Co. will build 2,000 of the cars at its Huntington, W. Va., shop and the Bethlehem Steel Company will build 1,000 at its Johnstown, Pa., plant. Deliveries from both plants are expected to start next December. The inquiry for this equipment was reported in *Railway Age* of March 27.

The **Louisville & Nashville** has ordered 4,000 50-ton steel twin hopper cars from the Pullman-Standard Car Manufacturing Company. The inquiry for this equipment was reported in *Railway Age* of March 27.

The **Grand Trunk Western** is inquiring for 700 50-ton steel-sheathed, wood-lined box cars, of which 500 are to be 40½-ft. long and 200 50½-ft. long.

The **Minneapolis, St. Paul & Sault Ste. Marie** will build 200 50-ton steel gondola cars at its shops in North Fond du Lac, Wis. Work on the cars. which are to be the general-service type and 42-ft. 4-in. long, is expected to begin early in 1949 and to be completed within three or four months. This car-building program is the first ever undertaken at the North Fond du Lac shops.

LOCOMOTIVES

The Baldwin Locomotive Works has received an order for 12 steam locomotives of the 2-8-2 type from the **Maritrop Trading Corporation,** representing the United Fruit Company. The new locomotives will be used on the United Fruit properties in Guatemala.

SIGNALING

More Train Communication On the Pennsylvania

The Pennsylvania has ordered equipment from the Union Switch & Signal Co. to install inductive-type telephone train communication on 104 mi. of the important single-track freight line between Columbus, Ohio, and Sandusky. The project, which will cost over $300,000, is to include the installation of communication apparatus on 31 steam freight locomotives and 28 cabin cars and in 10 wayside offices. The project is scheduled for completion by early summer to facilitate movement of coal on this portion of the route from mines to docks on Lake Erie at Sandusky.

Including earlier installations on the four-track main line between Harrisburg, Pa., and Pittsburgh, and on an important branch in New Jersey, the Pennsylvania's train telephone system, upon completion of this project will be in operation on 1,181 mi. of main tracks. A total of 345 passenger and freight locomotives, 129 cabin cars and 61 control towers then will be equipped.

The Western Pacific has placed an order with the Union Switch & Signal Co. covering the materials for the installation of centralized traffic control between Stockton, Cal., and Oroville, 107 mi. This section will complete a continuous stretch of C.T.C. signaling from Oakland, Cal., to Portola, a total distance of 314 mi. The control machine will be located at Sacramento, Cal. The order comprises M-22A dual-control electric switch layouts, Style-H-2

searchlight high and dwarf signals, relays, rectifiers, transformers and housings, along with the control machine and code apparatus. The installation work will be handled by railroad forces.

The **Reading** has ordered materials from the General Railway Signal Company for an all-relay electric interlocking to be installed at Shenandoah Junction, Pa. The control machine will have an 18 by 14-in. panel, equipped with 13 track indication lights and 7 miniature levers for the control of 6 switch machines and 12 signals. Equipment ordered includes Model-50 electric switch machines, steel instrument cases, Type-B relays and Type-C color-light signals.

The **Atchison, Topeka & Santa Fe** has placed an order with the Union Switch & Signal Co. for the signal material involved in the installation of centralized traffic control between Canyon, Tex., and Texico, N. M.,, 77 mi. of single track. A 15-ft. Style-C control machine, located at Amarillo, Tex., will control the C.T.C. territory. Coded track circuits will be utilized between sidings. In addition to the machine, the order includes the required code equipment, Style-H-5 high and dwarf searchlight signals, Style-M-22A electric switch movements, Style-T-21 switch movements, Style-SL-21A electric locks, carrier equipment, relays, rectifiers, transformers, switch circuit controllers and housings. The construction will be done by railway forces.

The **Atchison, Topeka & Santa Fe** has placed orders with the Union Switch & Signal Co. for materials of its manufacture for the installation of an electro-pneumatic car retarder system in the expanded classification yard at Argentine, Kan., now under construction. The orders include 12 car retarders totaling 1,573 rail feet of retarder, 62 direct-acting electric-pneumatic switch machines, with the necessary relays and housings, rectifiers and transformers, for detector track circuits for the switches, and 11 searchlight type signals for the control of humping operations. The field installation will be done by railway signal construction forces.

The **Chesapeake & Ohio** has placed an order with the Union Switch & Signal Co. for the necessary materials for an all-relay direct-wire interlocking at Newport, Ky., involving a 5-ft. Style-C control machine and related equipment. The construction work will be done by railroad signal forces.

The **Louisville & Nashville** has ordered equipment from the General Railway Signal Company for the installation of Type-K centralized traffic control on 76.6 mi. of single track and 5.4 mi. of double track between Irvine, Ky., and Perritt. The control machine, to be located at Ravenna, Ky., 81 mi. from the most distant controlled point, will have a 174-in. panel equipped with 88 track indication lights, a 28-point automatic train recorder and 60 miniature levers for the control of 24 switch machines, 2 spring switches and 111 signals. The equipment ordered includes Type-SA searchlight signals, Type-K relays, steel bungalows and Model-5D dual-control electric switch machines.

FINANCIAL

Chesapeake & Ohio.—*Annual Report.*—Operating revenues of this company last year totaled $312,953,036, compared with $244,094,274 in 1946. Operating expenses amounted to $232,668,989, compared with $183,408,353. Fixed charges were $8,832,683, compared with $8,891,554. Net income was $35,387,327, compared with $28,372,005. Current assets at the end of the year were $93,401,825, compared with $71,351,421. Current liabilities were $71,711,850, compared with $52,272,567. Total funded debt was $267,453,400, compared with $200,906,000. (The comparative statement of income for 1946 and 1947 covers the combined operations of the C. & O. and the Pere Marquette, although the 1946 balance sheet figures do not include the assets or liabilities of the latter road).

Chicago, Rock Island & Pacific.—*Director Predicts Dividend.*—Robert McKinney, a director of this company who is reported to represent the Alleghany Corporation's stock holdings, predicted April 3 in a newspaper interview that a dividend will be declared on the common stock this year for the first time since 1931. He was quoted as saying, "if the directors do not go along on a liberal dividend for the stockholders we will get some directors who will."

Illinois Central.—*Equipment Trust Certificates.*—Division 4 of the Interstate Commerce Commission has authorized this company to assume liability for $4,997,000 of series Y equipment trust certificates, the proceeds of which will be applied toward the acquisition of 1,500 50-ton steel box cars with A-3 Ride Control trucks, at an estimated unit cost of $3,950, and 195 50-ton steel hopper cars, at an estimated unit cost of $3.350. The equipment will be constructed at the applicant's Centralia, Ill., shops. The certificates will be dated August 1, 1947, and will mature in 19 semi-annual installments of $263,000, starting August 1. The report also approves a selling price of 99.4599 with a 2¼ per cent interest rate, the bid of Halsey, Stuart & Co., and associates, on which basis the average annual cost will be approximately 2.37 per cent.

Missouri-Kansas-Texas.—*Subsidiaries' Directors.*—The memberships of the boards of directors of the Wichita Falls & Northwestern, the Wichita Falls & Wellington and the Wichita Falls, all Katy subsidiaries, have been increased from seven to nine. Charles P. McGaha, president of the City National Bank of Wichita Falls, Tex., and H. M. Kelleher, a Wichita Falls oil operator, have been elected directors of the W. F. & N.; Justin McCarty, of Justin McCarty, Inc., Dallas, Tex., and Ray E. Hubbard, a Dallas oil operator, have been elected to the board of the W. F. & W.; and W. Erle White, president of White Auto Stores, Wichita Falls, and Joe J. Perkins, president of Perkins Brothers Stores, Wichita Falls, have been elected directors of the W.F.

New York, New Haven & Hartford.—*Operation of Boston & Providence.*—C. W. Mulcahy, trustee of the B. & P., has asked the Interstate Commerce Commission to prescribe a new formula providing for the allocation of revenues and expenses involved in that road's operation by the New Haven. In the absence of such a determination of "just and reasonable compensation," he has requested that the commission permit abandonment of the B. & P.

According to the trustee, a 1933 court order directed the then trustee of the New Haven to operate the B. & P. on behalf of the Old Colony, from which the New Haven leased the B. & P. properties, "but without expense to the New Haven estate." The trustee said that, the court order and the formula prescribed for segregating revenues and expenses of the New Haven system, the trustees of the New Haven claimed $12,466,312 in losses from operations of the B. & P. as of December 31, 1946. Losses claimed from the latter date until last September, when reorganization of the New Haven was consummated, totaled approximately $3,000,000, he added. Operation of the B. & P. still is being continued by the New Haven.

The trustee stated that, if the commission does not alter the segregation formula, further charges against the B. & P. in "ruinous and confiscatory amounts" will accrue. He said that, as the result of the consummation of the New Haven's reorganization, neither the court order nor the Bankruptcy Act should apply to the operations of the B. & P.

Pacific Electric.—*Acquisition.*—Division 4 of the Interstate Commerce Commission has authorized this road to acquire several lines from the Southern Pacific. The segments extend from Wintersburg, Cal., to Wiebling, 1 mile; from Stanton Junction to Los Alamitos, 4.5 miles; from a point near Stanton Junction to Wintersburg, 6.7 miles; and from Wiebling to Huntington Beach, 2.3 miles.

Reading. — *Bonds.* — This company's lessor and subsidiary, the Catawissa, has applied to the Interstate Commerce Commission for authority to extend from

(Continued on page 75)

NORFOLK AND WESTERN RAILWAY COMPANY

Summary of Fifty-Second Annual Report for 1947

Railway Operating Revenues increased $36,147,000, or 27.87 per cent., over 1946. This increase was due principally to greater freight traffic and to increases in rates authorized by the Interstate Commerce Commission and State Commissions. Passenger traffic decreased. Railway Operating Expenses increased $17,040,000, or 18.45 per cent., due principally to wage rate increases, higher cost of fuel and other materials and greater traffic volume. Balance of Income, after deducting Sinking Funds and Miscellaneous Appropriations, increased $9,559,000, or 42.05 per cent. After deducting dividends on Adjustment Preferred Stock, the balance transferred to earned surplus, $31,413,000, was equivalent to $5.58 per share of $25 par Common Stock.

Condensed Income Statement

	1947	Comparison with 1946	Per Cent
Railway Oper. Revenues	$165,861,514.20	Inc. $36,147,418.17	27.87
Railway Oper. Expenses	109,373,838.69	Inc. 17,039,870.08	18.45
Net Rev. from Rail. Oper.	$56,487,675.51	Inc. $19,107,548.09	51.12
Railway Tax Accruals:			
Federal	$26,306,989.83		
State, Cty. & Local	5,624,050.88		
	31,931,040.71	Inc. 6,865,036.95	27.39
Railway Oper. Income	$24,556,634.80	Inc. $12,242,511.14	99.42
Rent Income—Equipment & Joint Facilities—Net	10,502,410.01	Inc. 863,856.17	8.96
Net Railway Oper. Inc.	$35,059,044.81	Inc. $13,106,367.31	59.70
Non-Operating Income	2,355,352.17	Dec. 1,538,678.76	39.51
Total Income	$37,414,396.98	Inc. $11,567,688.55	44.75
Deductions from Tot. Inc.			
Int. on Funded Debt	$2,035,736.00	Dec. $36,209.46	2.05
Other Deductions	46,764.24	Dec. 322.95	.69
	$2,082,500.24	Dec. $36,532.41	1.72
Net Income	$35,331,896.74	Inc. $11,604,220.96	48.91
Sinking Funds and Miscellaneous Appropriations	3,039,288.71	Inc. 2,045,022.25	205.68
Balance of Income	$32,292,608.03	Inc. $9,559,198.71	42.05
Dividends on Adjustment Preferred Stock	879,608.00		
Balance Transferred to Earned Surplus	$31,413,000.03	Inc. $9,559,198.71	43.74

Condensed Earned Surplus—Unappropriated

Credit Balance, January 1, 1947		$204,836,765.78
Credits:		
Balance Transferred from Income	$31,413,000.03	
Miscellaneous Credits	258,757.70	
Total Credits		31,671,757.73
		$236,508,523.51
Charges:		
Appropriations of Surplus for Dividends on Common Stock	$20,394,003.50	
Miscellaneous Charges	602,486.70	
Total Charges		20,996,490.20
Credit Balance, December 31, 1947		$215,512,033.31

Financial

Under Charter amendment authorized by the Stockholders at the Annual Meeting held May 8, 1947, the par value of the Company's Adjustment Preferred Stock and Common Stock was changed from $100 per share to $25 per share, effective September 3, 1947. The Capital Stock of the Company held by the public was $162,638,500, and represented 77.21 per cent. of outstanding stock and bond capitalization. On December 31, 1947, the Company's stockholders numbered 15,228, an increase of 1,232 over the previous year.

Quarterly dividends were paid upon the outstanding $100 par Adjustment Preferred Stock in February, May and August at the rate of $1.00 per share, and on the new $25 par stock in November at the rate of twenty-five cents per share. Quarterly dividends on the $100 par Common Stock were paid in March, June and September at the rate of $2.50 per share, and on the new $25 par stock in December at the rate of seventy-five cents per share. An extra dividend of $3.00 per share of $100 par Common Stock was paid in March from 1946 earnings transferred to surplus, and an extra dividend of $1.00 per share of $25 par Common Stock was paid in December.

Total Funded Debt was $48,016,631.92, and represented 22.79 per cent. of outstanding capitalization. Fixed charges were earned 18.33 times in 1947 and an average of 13.69 times for the last ten years.

At the end of the year, appropriations to the voluntary sinking fund for retirement of direct Funded Debt and income from investments totaled $4,480,000, and investments in securities had a market value of $4,307,000.

Taxes

Railway Tax Accruals were $31,931,000, an increase of $6,865,000, or 27.39 per cent. Total taxes amounted to $1,383 for each employee, to $6 for each share of Common Stock of $25 par value and 19 cents per dollar of Operating Revenues. Federal Taxes were $26,307,000, an increase of $6,971,000, or 36.05 per cent., and represented 82.39 per cent. of all tax accruals for the year. Included in this amount were accruals for Normal tax and Surtax, $20,500,000, an increase of $5,000,000, or 32.26 per cent., due chiefly to increased revenues, and Railroad Retirement and Unemployment Insurance taxes, $5,775,000, an increase of $1,967,000, or 51.67 per cent., due largely to higher tax rate for employee retirement benefits.

A reserve fund for taxes and contingencies totaled $45,833,000 at the end of 1947. Of this fund, $38,833,000, was invested in United States Government obligations.

Transportation Rates

The increase in freight rates and charges, which became effective January 1, 1947, was not sufficient to cover continued rising costs of materials and fuel and wage increases previously awarded. To meet these steadily increasing costs, the railroads of the country on July 3 petitioned the Interstate Commerce Commission for a further increase in freight rates averaging approximately 17 per cent. Further wage awards became effective September 1, and the carriers then amended their petition for higher freight rates to meet the wage awards and a further advance in prices of materials and supplies. The petition as amended raised the requested increase in rates from an average of 17 per cent. to an average of 27 per cent.

The Commission, pending final decision on the petition, granted interim freight rate increases of 10 per cent. generally and 10 cents per ton on coal, coke and iron ore, which became effective October 13. These interim increases added approximately $1,800,000 to the Company's revenues to the end of the year.

To meet additional wage awards effective November 1, and expected awards, as well as continued higher materials and fuel costs, a further supplemental petition was filed on December 3 for additional increases of 3 percentage points in freight rates and 5 cents per ton on coal, coke and iron

ore. On December 29 the Commission rescinded the earlier interim increases and authorized an increase of 20 per cent. in basic freight rates with specific increases of 20 cents per ton on coal, coke and iron ore, effective January 5 to June 30, 1948, unless sooner terminated or modified, pending final decision upon the petition as amended. On volume and character of traffic handled in 1947, it is estimated that this Company's revenues under these interim rates will be $16,600,000 more per year than on basis of rates in effect prior to October 13.

Because of higher operating costs in general, the Commission, during 1947, authorized increases in passenger fares, compensation for carrying mail and express rates. Passenger fares in Eastern territory were increased from 2.2 cents to 2.5 cents per mile in coaches, and from 3.3 cents to 3.5 cents per mile in Pullman cars, with increases in certain round-trip fares, all effective on this railroad on June 10. Mail revenues were increased approximately $350,000 in 1947. The effect of higher express rates upon this Company's revenues will be minor.

Wage Increases

On March 25, 1947, organizations representing all non-operating employees demanded a wage increase of 20 cents per hour. The five operating brotherhoods on June 20 presented demands for changes in certain rules and working conditions, and followed this on September 30 with demand for a wage increase of 30 per cent. with minimum of $3.00 per basic day. Through award by an arbitration board, the non-operating employees received an increase of 15½ cents per hour, effective September 1. Through direct negotiation with the Conductors' and Trainmen's organizations, basic daily rates were increased $1.24 effective November 1, and certain rules were revised as of January 1, 1948. On the basis of 1947 employment, these wage increases and rules revisions will amount to $9,800,000 per year for the Company. The demands of the Engineers, Firemen and Switchmen are before a Presidential emergency fact-finding board for recommendation.

Employees

The average number of employees during the year was 23,094. Railway Property Investment averaged $25,749 per employee. The Company's total payroll for 1947 was $70,698,000, an average of $3,061 per employee, compared with $62,380,000 and $2,878, respectively, for 1946. In addition to wages and salaries, the Company paid $6,562,000 in 1947, compared with $4,441,000 in 1946, for Railroad Retirement and Unemployment Insurance taxes and employee relief and pension funds. These payments averaged $284 per employee.

The Board expresses to the officers and employees its appreciation of the continued fidelity, diligence and efficiency with which they have served the Company and the public during the year.

R. H. SMITH, *President.*

(Continued from page 73)

April 1 to April 1, 1968, the maturity date of $2,215,000 of 50-year, 4 per cent gold first mortgage consolidated bonds. At the same time, the Reading, which owns 94 per cent of the Catawissa's common stock and $1,600,000 of the bonds, asked the commission for authority to assume liability for the bonds. The bonds would bear interest at the rate of 3¾ per cent during the proposed extended period.

Southern.—*Annual Report.*—Operating revenues of this road last year totaled $222,833,435, compared with $212,041,109 in 1946. Operating expenses amounted to $171,673,513, compared with $171,791,729. Fixed charges were $12,716,756, compared with $12,651,070. Net income was $11,892,760, compared with $9,252,269. Current assets at the end of the year were $90,196,976, compared with $90,971,989. Current liabilities were $54,086,173, compared with $46,614,461. Long term debt was $229,314,260, compared with $233,748,882.

Tennesse.—*Bonds.*—Division 4 of the Interstate Commerce Commission has authorized this road to extend from August 2 to August 2, 1968, the maturity date of $917,200 of 6 per cent 30-year income debenture bonds.

Average Prices Stocks and Bonds

	Apr. 6	Last week	Last year
Average price of 20 representative railway stocks	50.66	49.51	47.05
Average price of 20 representative railway bonds	87.39	86.44	90.56

Dividends Declared

Atlantic Coast Line.—5% non-cum preferred, $2.50, semi-annually, payable May 10 to holders of record April 23.

Elmira & illiamsport.—$1.14, semi-annually, payable May 1 to holders of record April 20.

Lake Superior & Ishpeming.—25¢, payable April 15 to holders of record April 8.

Philadelphia & Trenton.—$2.50, quarterly, payable April 10 to holders of record April 1.

ORGANIZATIONS

Railroad Fuels Night At New York Railroad Club

The April 15 meeting of the New York Railroad Club has been designated Railroad Fuels Night. The speakers at the meeting—which will be at 8 p.m. at the Engineering Societies Building, 33 West 39th street, New York—will be Dr. W. J. Sweeny, vice-president of the Standard Oil Development Company, whose subject will be "Petroleum Products for Diesel Locomotives," and Earl C. Payne, consulting engineer of the Pittsburgh Consolidation Coal Company and chairman of the Motive Power Committee of Bituminous Coal Research, Inc., who will discuss "The Outlook of Coal for Railroad Fuel."

The next meeting of the **Southeastern Railway Diesel Club** will be held in the Floridian room of the Roosevelt Hotel, Jacksonville, Fla., on April 13 at 9:30 a.m. Speakers will be F. E. Stubbs, Diesel foreman, Southern; A. T. Baker, road foreman of engines, Seaboard Air Line; and H. D. Parker, general Diesel supervisor, Atlantic Coast Line, who will discuss "Abuse of Diesel-electric Locomotives."

The next regular monthly meeting of the **Northwest Locomotive Association** has been scheduled for April 19 at 8 p.m., at Woodruff Hall, St. Paul, Minn.

A dinner meeting of the **Car Department Association of St. Louis** will be held on April 20, 6:30 p.m., at the Hotel DeSoto, St. Louis, Mo. A paper entitled "Rolled Steel Wheels" will be presented by D. W. Odiorne, railway engineer of the Edgewater Steel Company.

The **New England Railroad Club** will be addressed by E. P. Gangewere, superintendent motive power and rolling equipment of the Reading, at its meeting on April 13 at 6:30 p.m., at the Hotel Vendome, Boston, Mass. Mr. Gangewere's subject will be "Rolling Wheels Gather No-Rust."

The **Stock Yards District Traffic Club,** at Chicago, will hold its next meeting at 6:30 p.m., on April 15, at the Central Manufacturing District Club rooms, 1106 W. 35th street. Kenneth Burgess of the law firm of Sidley, Austin, Burgess & Harper will be the guest speaker.

C. G. White, district freight agent of the Chesapeake & Ohio, was elected president of the **Traffic Club of Washington, D. C.,** at the March 18 meeting. Other officers elected are: First vice-president, W. E. Hayghe, head, central traffic service division, Procurement Division,

Treasury Department; second vice-president, F. G. McCann, general agent, New York Central; and secretary-treasurer, C. E. Milford (reelected), finance officer, U. S. Army, Transportation Division.

The 18th annual **Safety Convention Exposition** will be held at the Hotel Pennsylvania, New York, April 13-16, inclusive.

An address on "What the Railroads are Doing to Prevent Loss and Damage" will be presented to the packaging forum of the annual exposition and meeting of the **American Management Association** in Cleveland, Ohio, on April 27, by A. L. Green, special representative, Freight Claim Division, Association of American Railroads, Chicago.

CONSTRUCTION

Texas & New Orleans.—This road has applied to the Interstate Commerce Commission for authority to construct an 0.8-mile industrial spur in the Houston, Tex., switching district.

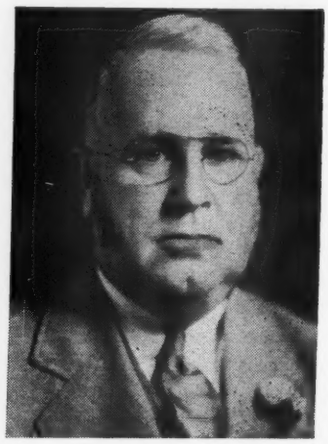
RAILWAY OFFICERS

EXECUTIVE

A. C. Siler, Jr., whose promotion to executive general agent of the Texas & Pacific, at Dallas, Tex., was reported in *Railway Age* of March 20, entered the service of the T. & P. as a messenger in the auditor's office in Dallas, at the age of 15. He later served successively as signal helper and timekeeper in the engineering department, and in 1930 he transferred to the freight accounting department, where he subsequently became rate clerk. Mr. Siler shifted to the traffic department in 1939 and served for a time at Texarkana, Tex. He was commercial agent for Seatrain Lines, Inc., from 1940 to 1942, at which time he entered military service. Upon his release from active duty, he returned to the T. & P. as executive representative at Dallas, which post he held at the time of his recent promotion.

A. C. Siler, Jr.

John F. Deasy, vice-president—assistant to president of the Pennsylvania at Philadelphia, Pa., retired on April 1 after 47 years of service with that road. Mr. Deasy was born at Hammorton, Pa., on March 25, 1882, and entered railroad service on June 10, 1901, as a telegraph operator on the then Central division of the Pennsylvania. While serving as a station agent on the Trenton division, he attended night school and studied law, and in 1912, was appointed supervising agent of the division. Successive advances in the operating department brought Mr. Deasy to the position of chief of freight transportation for the entire railroad in 1927. He became vice-president of the Central region at Pittsburgh, Pa., in 1931, and two years later returned to Philadelphia as vice-president in charge of operation. He was appointed vice-president-assistant to president in April, 1947, which position he held until his retirement.



John F. Deasy

W. R. Devenish, vice-president of the Western region of the Canadian National, with headquarters at Winnipeg, Man., has retired under the pension rules of the company, and has been succeeded by **J. P. Johnson,** vice-president and general manager of the Atlantic region at Moncton, N. B. **J. E. Pringle,** vice-president and general manager of the Central region, with headquarters at Toronto, Ont., has been appointed vice-president of the company at Toronto. **W. E. Robinson,** assistant general manager of the Central region at Toronto, has been appointed vice-president and general manager of the Atlantic region at Moncton, replacing Mr. Johnson. The position of assistant general manager of the Central region has been abolished.

FINANCIAL, LEGAL and ACCOUNTING

Kenneth C. Sawin, whose retirement as general claim agent of the Illinois Central, with headquarters at Jackson, Miss., was reported in *Railway Age* of March 6, was born in Chicago, and began his career with the I. C. in 1901, as an office boy in the law department at Chicago. He advanced through positions, successively, as clerk, stenographer and investigator, becoming claim agent in 1911. He later became chief clerk to the chief claim agent, and in 1926 was appointed district claim agent. In 1936 Mr. Sawin went to Jackson, Miss., as assistant general claim agent, which post he held until 1943, when he was promoted to general claim agent.

W. R. Hovious, whose appointment as general claim agent of the Illinois Central, at Jackson, Miss., was reported in *Railway Age* of March 6, was born at Columbia, Tenn., and attended the University of Mississippi. He began his railroad career in 1925 at Vicksburg, Miss., on the Alabama & Vicksburg (now part of the I.C.), as a clerk in the passenger department. He became secretary to the general superintendent at New Orleans, La., in 1927, and joined the road's claim department at Jackson in 1931, as a stenographer. Mr. Hovious was further advanced to claim agent at Memphis, Tenn., in 1933, to chief clerk and claim agent at Chicago in 1943 and to special claim agent in the following year. He was promoted in 1946 to assistant general claim agent at Chicago, which post he held at the time of his recent appointment.

W. R. Hovious

Leffel Gentry, district attorney for the Missouri Pacific, with headquarters at Little Rock, Ark., has been appointed general attorney and tax counsel at St. Louis, Mo., succeeding **James M. Chaney,** who has retired after 33 years of service in the road's legal department.

Robert W. Walker, attorney for the Atchison, Topeka & Santa Fe at Los

News Department continued on next left-hand page

PROBABLY no railroad man need be told that every carload of C & O's record-breaking tonnage moved behind steam.

Nor will it surprise many that almost every ton made most of its miles behind Lima-built locomotives.

The significant point is this: Here is an example of what *modern* steam power can do. It is a special example, to be sure, but a concrete one. Those are real locomotives, making real miles, moving real tonnage—and lots of it. Almost to an engine, they are modern—modern from the rims up, from the pilots back.

Could any other type of power—including older steam locomotives—have equalled C & O's cost per ton-mile?

We doubt it. That's why we say there *is* a place for steam—and in this place, the modern steam locomotive can do, and is doing, an outstanding job.

It's worth thinking about.


C. & O. Sets All-Time Record, Ships 90 Million Tons of Coal

BY ROBERT J. BOWMAN

President, Chesapeake & Ohio Railway

Experiencing the greatest year of its history in 1947, the Chesapeake and Ohio Railway Co. anticipates an even larger volume of business in 1948. In fact, this record will be bettered with the completion, in the coming year, of two branch lines which will open up new coal areas. Also new mines, along with widespread mechanization of existing mines, should increase materially the coal tonnage

this is steam at work

DIVISIONS: *Lima, Ohio* — Lima Locomotive Works Division; Lima Shovel and Crane Division. *Hamilton, Ohio* — Hooven, Owens, Rentschler Co.; Niles Tool Works Co.

PRINCIPAL PRODUCTS: Locomotives; Cranes and shovels; Niles heavy machine tools; Hamilton diesel and steam engines; Hamilton heavy metal stamping presses; Hamilton-Kruse automatic can-making machinery; Special heavy machinery; Heavy iron castings; Weldments.

LIMA HAMILTON CORPORATION

Angeles, Cal., has been appointed general attorney for the road in California, with the same headquarters. He succeeds **Leo E. Sievert,** whose appointment as executive representative of the president, at San Francisco, Cal., was reported in *Railway Age* of January 31.

Bernard V. Weiss, supervisor of divisional expenditures of the Pennsylvania, with headquarters at Chicago, has been promoted to supervisor of regional expenditures, Western Region, with headquarters remaining at Chicago. Mr. Weiss succeeds **Ward M. Whitney,** who retired on April 1.

OPERATING

James M. Aydelott, whose promotion to superintendent of the Fort Worth & Denver City (part of the Burlington Lines), at Amarillo, Tex., was reported in *Railway Age* of March 6, was born on December 28, 1905, at Brookfield, Mo. He began his railroad career in 1928 as a rodman with the Chicago, Burlington & Quincy, serving at Chicago, and Burlington, Iowa, and in 1931 he became a construction foreman. Mr. Aydelott joined the F. W. & D. C. at Stamford, Tex., in 1932, serving, successively, as roadmaster and assistant trainmaster at the latter point

James M. Aydelott

and at Childress, Tex. His next post was that of trainmaster at Fort Worth, Tex., to which he was appointed in 1937. He was later transferred to Wichita Falls, Tex., from which point he left the road in 1943 to enter military service. He served at different times during the war as commanding officer of the 745th and the 748th Railway Operating Battalions, and, following his relief from active duty, he returned to the F. W. & D. C. in January, 1947, as trainmaster at Childress. He was subsequently transferred to Amarillo, at which point he was located when appointed superintendent.

Walter O. Frame, whose appointment as general manager of the Fort Worth & Denver City (part of the Burlington Lines), at Fort Worth, Tex., was reported in *Railway Age* of March 6, was born on October 27, 1890, at Osceola, Iowa. Mr. Frame began his railroad career in 1905 as a track laborer on the Ottuma (Iowa) division of the Chicago, Burlington & Quincy. He subsequently held various positions with the Burlington, and later was associated for short periods of time with the Kansas City Termnial and the Chicago,

Walter O. Frame

Rock Island & Pacific. He became district engineer, maintenance-of-way, of the Burlington's Central district in 1927, and in 1936 was appointed assistant superintendent at Wymore, Neb. He was appointed superintendent of the road's Centerville (Iowa) division in 1939, and was transferred to Wichita Falls, Tex., in 1942 as superintendent of the F.W.&D.C. and general superintendent of the Wichita Valley. Mr. Frame was serving in these positions at the time of his new appointment.

T. R. Beach, superintendent of the Peoria & Pekin Union, with headquarters at Peoria, Ill., has been appointed general manager at that point, with jurisdiction over the transportation,

T. R. Beach

maintenance of equipment and maintenance of way departments. **S. J. Keeler,** assistant superintendent, has been appointed assistant general manager. The positions of superintendent and assistant superintendent have been abolished. Mr. Beach was born on October 28, 1895, at Franklin, Ky., and entered railway service in 1912 with the Illinois Central. Mr. Beach served as clerk, telegraph operator and agent until 1924, when he was appointed freight agent at Springfield, Ill. From 1929 to 1937 he was general yardmaster there, and in the latter year he was appointed trainmaster. Mr. Beach served in World Wars I and II, attaining the rank of lieutenant colonel in the latter as commanding officer of the 743d Railway Operation Battalion. Following his return from military service, Mr. Beach became trainmaster of the I. C. at Mattoon, Ill., which post he held until January, 1947, when he joined the P. & P. U. as superintendent.

C. W. Veale, trainmaster of the Atlantic Coast Line at Savannah, Ga., has been appointed acting superintendent of the Ocala district, with headquarters at Ocala, Fla. **L. W. Schuman,** trainmaster at Sanford, Fla., has been transferred to the Waycross district, with headquarters at Savannah, Ga. **C. N. Collins** has been appointed acting trainmaster of the Jacksonville district, with headquarters at Sanford.

The Chicago, Rock Island & Pacific has announced changes affecting three division superintendents. They are: **J. E. Newton,** at Fairbury, Neb., transferred to Cedar Rapids, Iowa; **B. R. Dew,** at Cedar Rapids, transferred to Rock Island, Ill.; and **J. W. Myers,** at Rock Island, transferred to Fairbury, succeeding Mr. Newton.

J. F. O'Connell and **E. C. Rowell** have been appointed trainmasters of the Syracuse division of the New York Central system. **B. Daniels,** trainmaster at Rochester, N. Y., has been transferred to the Hudson and Mohawk divisions.

John R. Marra, general manager of the Eastern Lakes department of the Railway Express Agency at Cleveland, Ohio, has been transferred to the Northeastern department, with headquarters at Boston, Mass., succeeding **R. A. Cox,** deceased.

W. H. Jackson, assistant superintendent of the Norfolk division of the Norfolk & Western at Bluefield, W. Va., has been promoted to superintendent of that division, with headquarters at Crewe, Va., succeeding the late **John T. Ellett.**

R. Hayes, superintendent of the Montreal terminals and St. Jerome divisions of the Canadian National, has been appointed general superintendent of the Northern Ontario district at North Bay, Ont., succeeding **W. H. Kyle,** who has been transferred to the Montreal district at Montreal, Que., to succeed **A. J. Lomas,** who has been promoted to general manager of the Central region at Toronto, Ont. **W. J. Hotrum,** superin-

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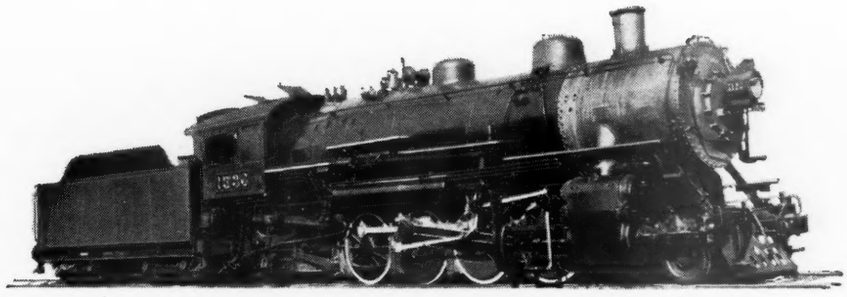
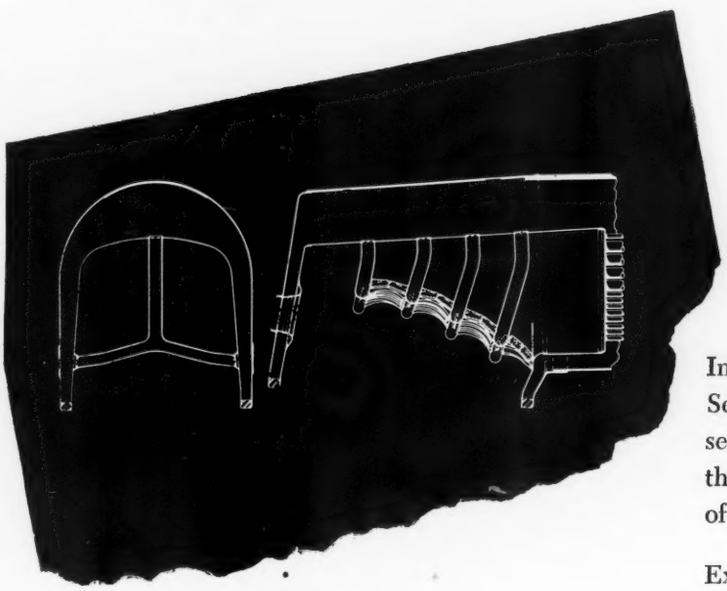


Security Circulators used in modernizing type 2-8-2 locomotives



Arrangement of Security Circulators in a coal-burning 2-8-2 locomotive

In equipping existing steam motive power with Security Circulators, most efficient results are secured because the number and arrangement of the Circulators are specifically adapted to the type of locomotive in which they are being installed.

Experience has shown that Security Circulators definitely tend to reduce honeycombing, flue plugging and cinder cutting, and to prolong the life of arch brick. Consequently the installation of Security Circulators in existing steam locomotives makes them available for much longer periods of *continuous operation.*

AMERICAN ARCH COMPANY, INC.

NEW YORK • CHICAGO

SECURITY CIRCULATOR DIVISION

tendent of the Ottawa division at Ottawa, Ont., succeeds Mr. Hayes at Montreal, and is succeeded at Ottawa by **G. T. Dunn,** superintendent of the Capreol division. **A. R. Wilson,** acting superintendent of the Belleville division at Belleville, Ont., has been appointed superintendent of the Capreol division, succeeding Mr. Dunn. **E. H. Locke,** superintendent terminals at Port Huron, Mich., has been appointed superintendent of Belleville division and **E. B. Ryerson,** acting superintendent terminals at Black Rock, N. Y., has been appointed superintendent terminals there. **W. E. Tate,** acting assistant superintendent at London, Ont., has been appointed assistant superintendent there. **T. H. Ward,** senior rule instructor at Toronto, has been appointed trainmaster at Branford, Ont. **A. G. Thernstrom,** agent, succeeds Mr. Locke as superintendent of terminals at Port Huron.

G. J. Mulick, formerly assistant general manager of the Union Pacific, with headquarters at Portland, Ore., has been appointed special representative to vice-president—operations of the Chicago, Rock Island & Pacific, with headquarters at Chicago. **R. E. Johnson,** assistant general manager at El Reno, Okla., has been transferred to Kansas City, Mo., replacing **C. L. Franklin,** who has been transferred to El Reno.

F. H. Cook has resumed his duties as superintendent of the Missouri Pacific Lines, with headquarters at Palestine, Tex., succeeding **R. Johnson,** who has held the post in Mr. Cook's absence. Mr. Johnson returns to his position as assistant superintendent at DeQuincy, La., replacing **E. C. Sheffield,** who returns to Houston, Tex., as terminal superintendent. **N. L. Morris,** who served temporarily as terminal superintendent at Houston, becomes trainmaster at that point.

A. C. Dewhirst, assistant manager of the Atchison, Topeka & Santa Fe's refrigerator department, at Chicago, has been promoted to manager of that department, with the same headquarters, succeeding **George H. Nelson,** who has retired after 50 years of service with the road.

W. G. Dorwart, division superintendent of the Pennsylvania at Indianapolis, Ind., has been transferred to the Cleveland division at Cleveland, Ohio, succeeding **W. D. Supplee.**

R. D. Fretwell, division superintendent of the Kansas City Southern, with headquarters at Pittsburg, Kan., has been granted an indefinite leave of absence to accept a position with the War Department, as transportation specialist at Austrian Railway Headquarters at Vienna, Austria. He is succeeded by **C. Gibbs,** superintendent at Shreveport, La., who in turn is succeeded by **C. M. Martin,** chief dispatcher at Pittsburg. **S. T. Scott,** assistant general yardmaster at Shreveport, has been appointed terminal trainmaster at that point.

TRAFFIC

John B. Dorrance, Jr., whose appointment as general passenger agent of the Pennsylvania at Washington, D. C., was reported in *Railway Age* of March 20, was born at Hightstown, N. J., and entered the service of the Pennsylvania

John B. Dorrance, Jr.

as a clerk in 1935. He became assistant general passenger agent at New York in 1943, which position he held until his recent appointment as general passenger agent at Washington, D. C.

Frank G. Cole, whose retirement as general freight agent of the Atchison, Topeka & Santa Fe's Coast Lines, at Los Angeles, Cal., was reported in *Railway Age* of February 28, was born on April 23, 1888, at Dayton, Iowa. He entered Santa Fe service in 1905, as a messenger in the general freight office at San Francisco, Cal., and was appointed soliciting freight agent there in 1917. He subsequently served as rate clerk, clerk in the import and export departments, city freight agent and chief clerk. Mr. Cole was promoted to assistant division freight agent at San Francisco in 1928 and to division freight agent at Oakland, Cal., in 1930. He was transferred to San Francisco in 1940, and in the following year was advanced to general freight agent at Los Angeles, which post he held at the time of his retirement.

Robert J. Hurst, whose promotion to assistant traffic manager of the Elgin, Joliet & Eastern, with headquarters at Chicago, was reported in *Railway Age* of March 6, was born on May 21, 1905, at Chicago. Mr. Hurst received his higher education at the John Marshall Law School, from which he received his LL.B. degree in 1939. He began his career with the E.J.&E. in 1920, as an office boy, and subsequently held various positions in the road's traffic department. He was appointed assistant general freight agent in 1941 and general freight agent in August, 1947, which position he held at the time of his new appointment.

P. E. White, general agent of the Western Pacific, with headquarters at Omaha, Neb., will become eastern traffic manager at New York on April 22, succeeding **D. C. McCready,** who is retiring. Mr. White will be succeeded by **J. J. Kirch** traveling freight and passenger agent at Kansas City, Mo. **Spencer Gibons,** freight traffic agent at Chicago, has been appointed general agent at Pittsburgh, Pa., succeeding **Edward S. O'Brien,** whose death on March 16 was reported in *Railway Age* of March 27.

H. S. Zane, whose promotion to freight traffic manager of the Chicago, Milwaukee, St. Paul & Pacific, at Chicago, was reported in *Railway Age* of February 14, was born on July 7, 1888, at Kansas City, Kan., and entered the service of the Milwaukee in 1904 as a messenger in the road's local office at Kansas City. He advanced through various positions to that of city freight agent in 1917 and general warehouse foreman in 1918. He next held positions successively as city freight

H. S. Zane

agent, Kansas City; traveling freight agent, Kansas City; general agent Tulsa, Okla.; and acting general southwestern agent Kansas City. He was appointed general southwestern agent in 1933 and general northwestern freight agent, at Minneapolis, Minn., in 1938. Mr. Zane was advanced in 1939 to assistant freight traffic manager at Chicago, which post he held at the time of his recent appointment.

F. E. Johnson has been appointed general agent of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Cleveland, Ohio.

A. M. Shields, whose promotion to general freight agent in charge of sales and service of the Canadian Pacific, at Winnipeg, Man., was reported in *Railway Age* of March 27, first joined the C. P. as a clerk in Winnipeg in 1917.

News Department continued on next left-hand page

Water carryover with the steam is the biggest offender in the loss of superheat.

Such losses can be prevented with an Elesco Steam Dryer System.

It pays to equip every locomotive . . . INVESTIGATE.

Cylinder Efficiency *drops* 1½% — 2% with each 15 deg. loss of superheat.

THE
SUPERHEATER
COMPANY

Representative of AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street, NEW YORK
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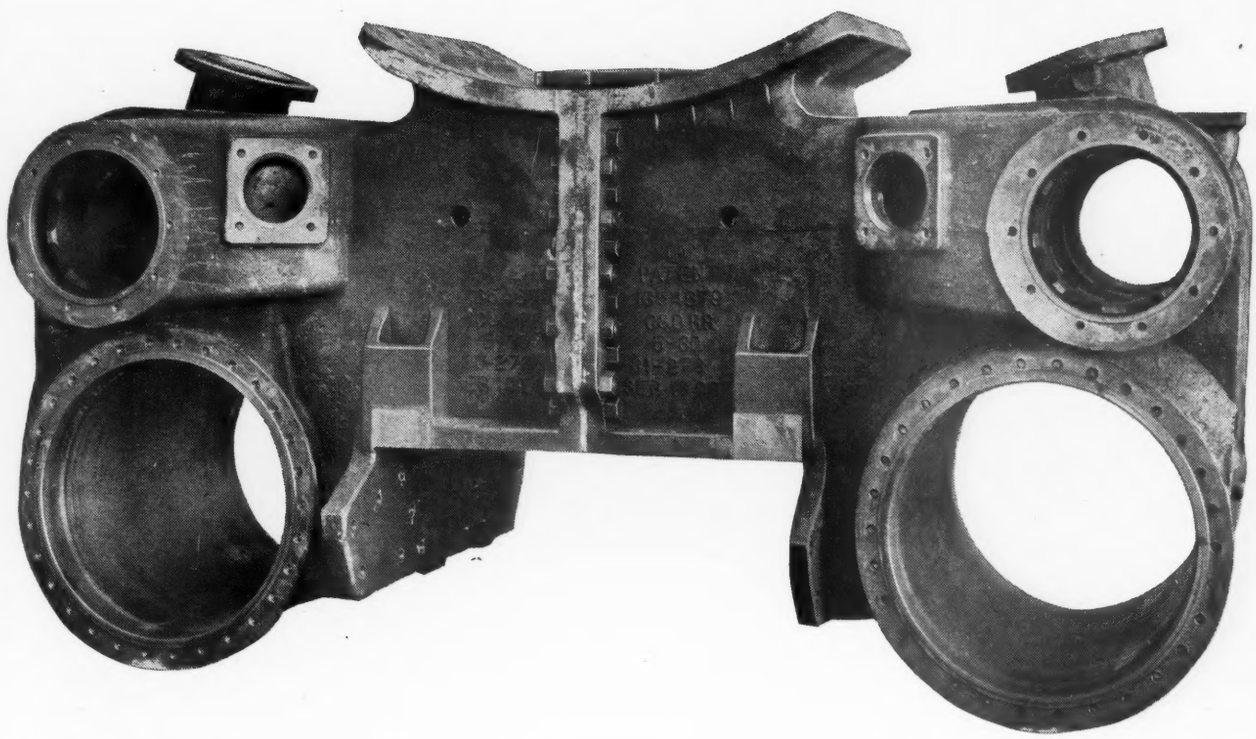
Montreal, Canada, THE SUPERHEATER COMPANY, LTD.



Superheaters • Superheater Pyrometers • Exhaust Steam Injectors • Steam Dryers • Feedwater Heaters • Steam Generators • Oil Separators • American Throttles

He subsequently served at various points on the road's western lines, including Regina, Sask., Moose Jaw and Edmonton, Alta. Mr. Shields became division

A. M. Shields

freight agent at Winnipeg in 1946, and was holding that position at the time of his recent appointment.

Walter J. Treloar, assistant manager of mail and express of the New York Central, has been appointed manager of mail and express traffic, with headquarters at New York, succeeding **Charles B. Bennett,** who has retired after having served as manager for the past 15 years.

A. M. Lietzell, general agent of the St. Louis-San Francisco, with headquarters at Fort Smith, Ark., has retired after 50 years of railroad service. He is succeeded by **C. N. Ellison,** agent at Sherman, Tex. **R. P. Haas,** general agent at Wichita, Kan., has also retired, following a railroad career of 45 years. He is succeeded by **Earl A. Bennett,** transferred from Augusta, Kan.

Edward C. Drake, district passenger agent of the Canadian National at New York, at his own request, will retire from service on April 15, after 43 years of railroad service.

E. P. Crow has been appointed assistant to general freight agent of the Atlantic Coast Line at Wilmington, N. C., succeeding C. F. Theobald, who has been appointed assistant general freight agent at Wilmington.

Sherwood L. Hamilton has been appointed general agent of the New York, Ontario & Western, with headquarters at Chicago.

ENGINEERING and SIGNALING

J. C. Jacobs, division engineer of the Illinois Central, with headquarters at Jackson, Tenn., has been appointed acting assistant engineer maintenance of way, at Memphis, Tenn., succeeding **J. E. Rogan** (headquarters at Chicago), who is on leave of absence due to ill health. Mr. Jacobs is succeeded by **E. F. Snyder,** supervisor of track at Corinth, Miss., who has been appointed acting division engineer at Jackson.

Tom A. Blair, assistant chief engineer of the Atchison, Topeka & Santa Fe System, with headquarters at Chicago, has been promoted to chief engineer of the system, succeeding **Guy W. Harris,** who has retired after 50 years of service with the railroad. Mr. Blair was born on June 1, 1892, at DeBeque, Colo., and attended grade and high schools at Grand Junction, Colo., and Montrose. He graduated from the University of Colorado with a degree in

Tom A. Blair

civil engineering in 1913, and two years later he entered the service of the Santa Fe as a rodman at Pueblo, Colo. He subsequently held positions, successively, as transitman, office engineer, building inspector, roadmaster, assistant engineer, division engineer, district engineer and trainmaster. Mr. Blair was appointed chief engineer, Western Lines, with headquarters at Amarillo, Tex., and in 1943 was advanced to assistant chief engineer of the Santa Fe System, at Chicago.

MECHANICAL

D. J. Everett, master mechanic of the Gulf, Colorado & Santa Fe (part of the Atchison, Topeka & Santa Fe), at Temple, Tex., has been transferred to Argentine, Kan., on the Santa Fe's Eastern Lines, succeeding **J. G. Danneberg,** who in turn replaces Mr. Everett at Temple.

J. E. Kerwin, general foreman of the Chicago, Rock Island & Pacific, with headquarters at Blue Island, Ill., has been appointed assistant to the general superintendent of motive power, at Chicago, with jurisdiction over all mechanical matters. Other changes in the road's mechanical department are: **S. E. Mueller,** master mechanic at Silvis, Ill., transferred to Cedar Rapids, Iowa, succeeding **C. E. Farley,** who has retired after 49 years of service with the Rock Island; **J. H. Mullinix,** master mechanic at Goodland, Kan., appointed to succeed Mr. Mueller; **W. F. Kline,** road foreman of equipment at Fairbury, Neb., appointed to succeed Mr. Mullinix; and **L. B. Close,** general foreman at El Reno, Okla., appointed master mechanic at Little Rock, Ark., succeeding **R. E. Detrick,** transferred to Fort Worth, Tex.

J. P. Becker, assistant to superintendent of motive power of the Chicago Great Western, with headquarters at Oelwein, Iowa, has been appointed general mechanical inspector at that point. **A. L. Porter,** supervisor of internal combustion locomotives, has been appointed general supervisor of Diesel locomotives and **W. L. Castleman,** assistant supervisor of internal combustion locomotives, has been appointed assistant general supervisor of Diesel locomotives. The former positions of Mr. Porter and Mr. Castleman have been abolished.

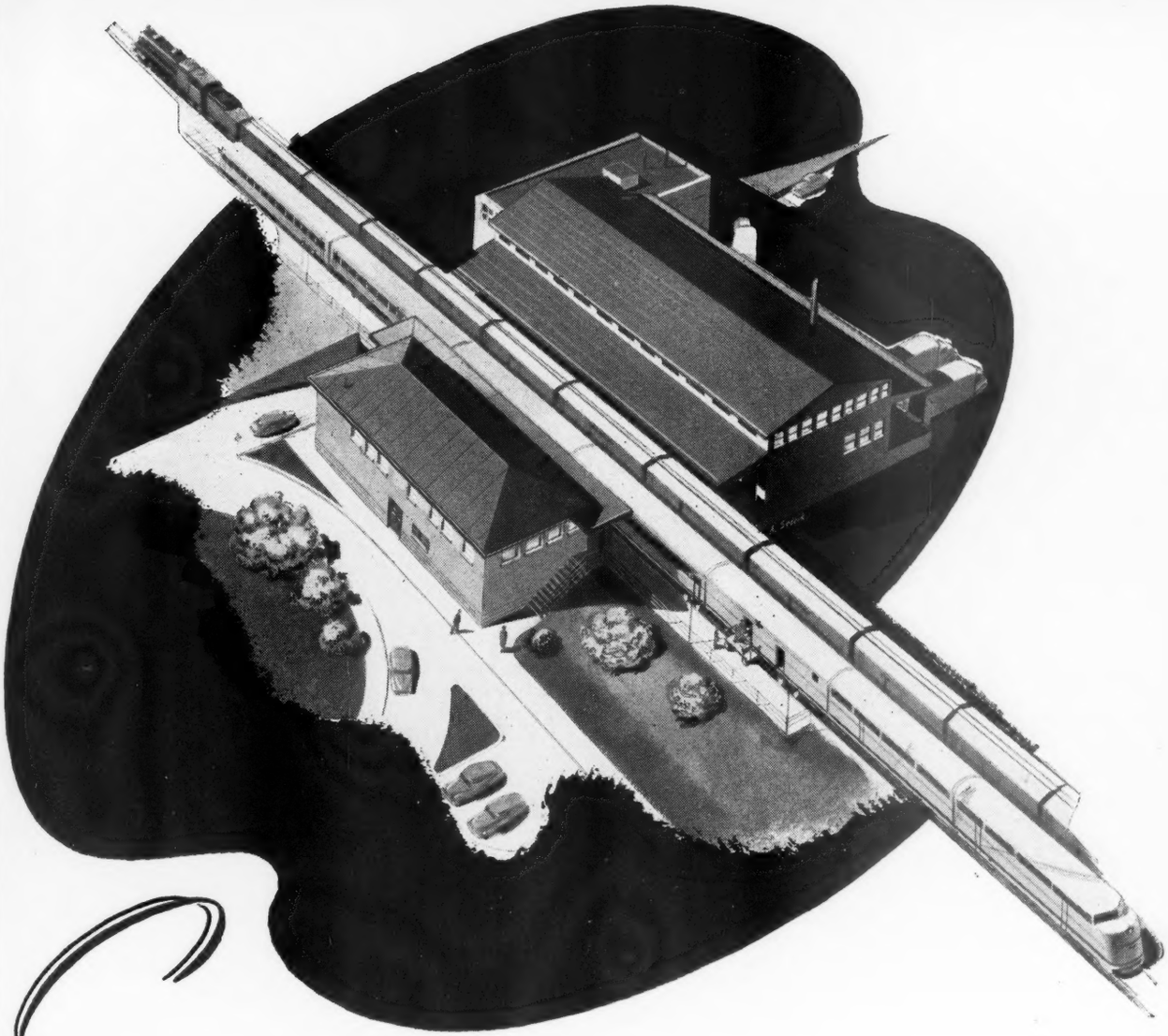
Arthur H. Keys, assistant superintendent of the car department of the Baltimore & Ohio at Baltimore, Md., has been promoted to superintendent car department, succeeding **Frank H. Becherer,** who has retired from active duty, after 47 years of railroad service. Mr. Becherer entered railroad service in 1901 in the car department of the Erie. He advanced to chief clerk in the car department in 1904 and then joined the car department of the Pennsylvania in 1907. In 1918 he entered the employ of the Bureau of Valuation of the Interstate Commerce Commission as senior mechanical engineer. Mr. Becherer resigned from the I.C.C. in 1922 to go with the Boston & Maine in the mechanical department. In 1926 he joined the Central of New Jersey as superintendent of the car department, advancing to assistant superintendent of motive power and equipment in 1930. In January, 1942, Mr. Becherer became superintendent of the car department of the Baltimore & Ohio at Baltimore.

OBITUARY

Fred H. Beeman, foreign freight agent of the Atchison, Topeka & Santa Fe at Los Angeles, Cal., died recently at the Santa Fe Hospital in that city, after a brief illness.

John T. Ellett, superintendent of the Norfolk division of the Norfolk & Western at Crewe, Va., died suddenly on April 2, exactly 16 years after his appointment as division superintendent. Mr. Ellett joined the N. & W. as a messenger at Crewe on August 7, 1890, when but 11 years old, and was employed on the Norfolk division for almost 58 years. He was promoted to telegraph operator at Crewe in May, 1893; dispatcher in October, 1899; and received successive promotions until he was appointed trainmaster in October, 1915. Mr. Ellett became division superintendent on April 1, 1932.

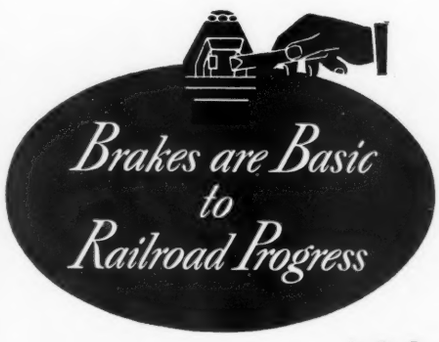
Operating Revenues and Expenses table appears on next left-hand page



Smoother safer journeys both for passengers and freight

Whether it is handling a long, heavy-tonnage freight or a string of modern passenger cars, Westinghouse 24RL locomotive brake equipment helps assure the smooth, safe journeys that win and hold patronage.

Any desired combination of functions can be provided by merely combining standard parts. This simplifies installation and servicing, and permits easy conversion if future changes in locomotive assignment should make this desirable. Operating characteristics provided by each combination are matched exactly to the need, provide the ultimate in positive, dependable train control. The 24RL is the answer to modern requirements.



Westinghouse Air Brake Co.

WILMERDING, PA.

OPERATING REVENUES AND OPERATING EXPENSES OF CLASS I STEAM RAILWAYS

Compiled from 127 monthly reports and revenues representing 131 Class I steam railways

(Switching and Terminal Companies Not Included)

FOR THE MONTH OF DECEMBER 1947 AND 1946

Item	United States		Eastern District		Southern District		Western District	
	1947	1946	1947	1946	1947	1946	1947	1946
Miles of road operated at close of month	227,011	227,274	53,705	53,727	46,142	46,254	127,158	127,293
Revenues:								
Freight	$627,815,679	$493,906,680	$230,190,002	$185,034,581	$131,599,208	$104,259,379	$266,026,469	$204,612,720
Passenger	89,461,457	92,718,247	46,724,942	45,012,018	13,320,758	16,205,643	29,415,757	31,500,586
Mail	44,660,612	13,648,891	16,021,782	4,691,067	8,323,804	2,496,155	20,315,026	6,461,669
Express	12,800,059	9,136,870	3,540,108	1,968,950	2,281,557	1,577,996	6,978,394	5,589,924
All other operating revenues	32,690,375	28,242,912	13,965,784	12,789,770	5,757,958	4,194,681	12,966,633	11,258,46
Railway operating revenues	807,428,182	637,653,800	310,442,618	249,496,386	161,283,285	128,733,854	335,702,279	259,423,360
Expenses:								
Maintenance of way and structures	104,269,167	91,749,487	38,584,403	35,175,618	22,084,256	18,135,036	43,600,508	38,438,833
Depreciation	10,537,404	10,410,648	4,555,825	4,524,325	1,822,835	1,821,185	4,158,744	4,056,138
Retirements	4,925,881	3,973,950	1,751,720	1,611,131	1,207,622	1,093,135	1,965,539	1,269,684
Deferred maintenance	*1,253,241	*402,371	*6,204	*85,220	*130,363	*14,442	*1,116,674	*302,709
Amortization of defense projects	169,702	*606,814	11,892	*543	45,304	21,743	112,506	*628,014
Equalization	*568,142	*2,815,308	797,295	*542,890	*674,578	*1,708,893	*690,859	*563,525
All other	90,457,565	81,198,382	31,472,875	29,668,815	19,813,436	16,922,308	39,171,252	34,607,259
Maintenance of equipment	138,718,212	124,260,248	58,960,045	52,642,418	27,469,580	23,950,973	52,288,587	47,666,857
Depreciation	19,218,011	18,442,011	7,162,093	7,227,823	4,412,693	4,094,576	7,643,225	7,119,612
Retirements	*107,861	*12,580	*15,545	*2,083	*19,127	*2,950	*73,189	*7,547
Deferred maintenance and major repairs	*191,647	*363,089	92,693	*29,618	*88,991	*72,324	*195,349	*261,147
Amortization of defense projects	1,250,839	1,255,620	452,341	487,505	239,223	228,113	559,275	540,002
Equalization	*923,870	*425,117	*87,569	4,195	*582,931	*399,262	*253,343	*30,050
All other	119,472,740	105,363,403	51,356,059	44,954,596	23,508,713	20,102,820	44,607,968	40,305,987
Traffic	16,044,017	14,202,108	5,608,316	5,078,672	3,489,330	2,859,131	6,946,371	6,264,305
Transportation—Rail line	337,313,098	287,810,494	146,971,924	124,084,645	62,355,746	52,498,668	127,985,428	111,227,181
Miscellaneous operations	11,873,972	11,212,285	4,517,398	4,109,638	1,737,820	1,645,992	5,618,754	5,456,655
General	22,931,761	20,598,578	8,750,696	8,378,614	5,311,736	4,246,550	8,869,329	7,973,414
Railway operating expenses	631,150,227	549,833,200	263,392,782	229,469,605	122,448,468	103,336,350	245,308,977	217,027,245
Net revenue from railway operations	176,277,955	87,820,400	47,049,836	20,026,781	38,834,817	25,397,504	90,393,302	42,396,115
Railway tax accruals	80,843,091	*28,772,759	18,003,683	*24,020,325	18,664,467	*1,616,128	44,174,941	*3,136,306
Pay-roll taxes	31,172,375	21,096,106	12,916,991	8,956,628	6,077,120	3,937,696	12,178,264	8,201,782
Federal income taxes	24,032,356	*69,408,154	*3,868,018	*36,061,297	6,808,774	*9,701,080	21,091,600	*23,645,777
All other taxes	25,638,360	19,539,289	8,954,710	3,084,344	5,778,573	4,147,256	10,905,077	12,307,689
Railway operating income	95,434,864	116,593,159	29,046,153	44,047,106	20,170,350	27,013,632	46,218,361	45,532,421
Equipment rents—Dr. balance	11,430,394	9,966,534	6,353,985	5,634,702	*1,494,203	*232,266	6,570,612	4,564,100
Joint facility rent—Dr. balance	3,981,782	2,872,615	1,756,256	1,471,620	715,460	327,645	1,510,066	1,073,350
Net railway operating income	80,022,688	103,754,010	20,935,912	36,940,784	20,949,255	26,918,255	38,137,683	39,894,971
Ratio of expenses to revenues (per cent)	78.2	86.2	84.8	92.0	75.9	80.3	73.1	83.7

FOR THE TWELVE MONTHS ENDED WITH DECEMBER 1947 AND 1946

Item	United States		Eastern District		Southern District		Western District	
	1947	1946	1947	1946	1947	1946	1947	1946
Miles of road operated at close of month	227,146	227,661	53,724	53,792	46,181	46,267	127,241	127,632
Revenues:								
Freight	$7,040,973,113	$5,787,234,707	$2,661,391,118	$2,182,945,078	$1,462,245,830	$1,212,051,005	$2,917,336,165	$2,392,238,624
Passenger	963,322,175	1,256,191,395	486,828,740	576,408,033	143,413,015	213,824,266	323,080,420	468,959,096
Mail	‡170,181,615	129,016,925	61,300,939	45,184,892	30,985,818	23,657,506	77,894,858	60,174,527
Express	115,835,543	92,788,713	33,635,206	9,309,130	20,547,894	15,133,907	61,652,443	68,345,676
All other operating revenues	394,381,864	360,170,155	173,368,563	163,807,464	66,870,428	51,927,314	154,142,873	144,435,377
Railway operating revenues	8,684,694,310	†7,628,401,859	3,416,524,566	2,977,654,597	1,734,062,985	1,516,593,998	3,534,106,759	3,134,153,300
Expenses:								
Maintenance of way and structures	1,212,053,026	1,150,339,238	443,699,84	418,826,530	263,258,902	245,297,446	505,094,277	486,215,262
Depreciation	122,300,703	120,782,933	52,320,087	51,840,633	20,963,744	20,524,219	49,016,872	48,418,081
Retirements	17,355,336	14,552,753	4,451,323	4,365,268	3,774,551	2,448,505	9,129,462	7,738,980
Deferred maintenance	*7,259,762	*5,663,854	*284,546	*1,448,182	*1,085,087	27,215	*5,890,129	*4,242,887
Amortization of defense projects	1,397,895	*209,124	84,274	38,018	449,661	164,167	863,960	*411,309
Equalization	105,091	4,077	.....	.....	.....	.....	105,091	4,077
All other	1,078,153,763	1,020,872,453	387,128,709	364,030,793	239,156,053	222,133,340	451,869,021	434,708,320
Maintenance of equipment	1,557,960,665	1,468,894,091	666,840,784	619,240,487	313,292,218	284,237,054	577,827,663	565,416,550
Depreciation	230,556,411	221,089,730	91,853,417	89,980,680	51,138,605	47,704,471	87,654,389	83,404,579
Retirements	*563,717	*378,903	*83,665	*114,910	*127,606	*120,586	*352,446	*143,407
Deferred maintenance and major repairs	*4,029,971	*3,712,687	439,874	*222,835	*1,544,532	*567,781	*2,925,313	*2,922,071
Amortization of defense projects	14,802,256	10,162,038	5,518,491	4,287,158	2,958,154	1,724,968	6,325,611	4,149,912
Equalization	.....	.....	.....	.....	.....	.....	.....	.....
All other	1,317,195,686	1,241,733,913	569,112,667	525,310,394	260,867,597	235,495,982	487,215,422	480,927,537
Traffic	176,310,404	164,839,969	61,089,432	58,825,415	37,837,710	33,235,084	77,383,262	72,779,470
Transportation—Rail line	3,476,343,568	3,212,513,384	1,504,221,386	1,378,505,830	644,056,141	589,749,473	1,328,066,041	1,244,258,081
Miscellaneous operations	129,166,504	129,319,809	48,287,820	48,381,955	18,810,877	18,194,552	62,067,807	62,743,833
General	245,228,317	232,284,537	94,452,383	90,187,981	53,747,524	49,414,712	97,028,410	92,681,844
Railway operating expenses	6,797,062,484	6,358,191,109	2,818,591,652	2,613,968,198	1,331,003,372	1,220,128,321	2,647,467,460	2,524,094,490
New revenue from railway operations	1,887,631,826	1,270,210,786	597,932,914	363,686,399	403,059,613	296,465,677	886,639,299	610,058,710
Railway tax accruals	936,373,636	498,395,456	302,794,358	148,338,454	213,622,442	136,958,821	419,956,836	213,098,181
Pay-roll taxes	353,365,250	254,379,022	147,519,011	105,354,905	68,932,677	86,659,924	136,913,562	100,364,193
Federal income taxes	297,800,135	*15,479,853	48,536,237	*53,880,143	85,040,166	33,775,078	164,223,732	4,625,212
All other taxes	285,208,251	259,496,287	106,739,110	96,863,692	59,649,599	54,523,819	118,819,542	108,108,776
Railway operating income	951,258,190	771,815,330	295,138,556	215,347,945	189,437,171	159,506,856	466,682,463	396,960,529
Equipment rents—Dr. balance	128,643,690	113,432,693	59,286,853	51,297,313	*9,537,690	*4,262,002	78,894,527	66,397,382
Joint facility rent—Dr. balance	41,900,073	38,554,109	20,047,643	19,120,200	6,580,425	5,618,651	15,272,005	13,815,258
Net railway operating income	780,714,427	619,828,528	215,804,060	144,930,432	192,394,436	158,150,207	372,515,931	316,747,889
Ratio of expenses to revenues (per cent)	78.3	83.3	82.5	87.8	76.8	80.5	74.9	80.5

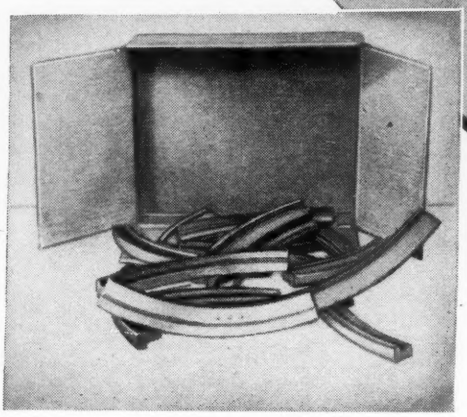
* Decrease, deficit, or other reverse item.

† Railway operating revenues are after deduction of $8,407,823 for the twelve months ended with December 1946, to create a reserve for land grand deductions in dispute.

‡ Includes accruals for Mail Pay increase in the amount of $30,081,853.

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

Give the "Old Girl" a break



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Current Publications

BOOKS

Elements of Railroad Engineering, by William G. Raymond, Henry E. Riggs, and Walter C. Sadler. Sixth edition, 442 pages. Published by John Wiley & Sons, New York. Price $5.

This book serves both as a textbook for students specializing in railroad engineering, and as a survey of the subject for engineers who want to understand the basic principles of railroading. It deals with modern engineering practice in the construction, maintenance, and operation of steam railroads in this country. .The fifth edition has been brought up to date. Two new chapters have been added on streamlined trains and on power and passenger equipment; tables have been revised to cover the freight and passenger business of the war years, and many sections have been rewritten. The book is divided into four parts: the railroad industry; permanent way; the locomotive and its work; and railroad location, construction and betterment surveys.

The Nickel Plate Road; the History of a Great Railroad, by Taylor Hampton. 366 pages, illustrations, maps. Published by the World Publishing Compny, 2231 West 110th st., Cleveland 2, Ohio. Price, $3.75.

This history of the New York, Chicago & St. Louis, the Nickel Plate, is divided into four parts; Part One, the Seney Syndicate; Part Two, the New York Central Regime; Part Three, the Van Sweringen Period; and Part Four, the Young Era. Each traces the history and development of the company for that part of its life. Five appendices contain historical and financial data, and these are followed by a bibliography and an index.

PAMPHLETS

A Brief History of the St. Louis Southwestern Railway Lines, by Jacob E. Anderson. 29 pages, illustrations. Published by the St. Louis Southwestern Railway Company, Public Relations Department, 522 Cotton Belt Building, St. Louis 2, Mo. Free.

This history of the St. Louis Southwestern, its constituent lines, and the men who developed them, was published serially in the road's employee magazine, Cotton Belt News, and has now been issued in pamphlet form.

The Scientific Research Department of the L.M.S. 24 pages. Published by the London, Midland & Scottish Railway, Euston House, London, N. W. 1, England.

The L.M.S. has prepared this brochure for the guidance and information of visitors to its scientific research laboratory at Derby. It outlines the history and scope of the department and describes each of its sections, i.e., engineering, metallurgical, paints, physics, textile and chemical. It includes a chart showing the set-up of the research department within the railroad's organization and a select list of published papers by members of the department from 1935 to 1946.